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POPULAR PHOTOGRAPHY

HOW TO MAKE GREAT PICTURES

NIKON'S NEW STEAL D5100

IN-DEPTH LAB & FIELD TEST

GREATER RESOLUTION

HIGHER ISO

BETTER HANDLING

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JUNE 2011

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The awards are coming into focus.

It's an honor that *DPReview.com, American Photo, Popular Photography* and *TIME® Magazine's* 50 Best Inventions of 2010 all praised our cameras this year. The αNEX-5, the world's smallest and lightest interchangeable lens digital camera* and the α55, which shoots up to 10 frames per second and full HD video while maintaining continuous auto focus, have no problem letting their stunning images speak for themselves. But, it is nice to have someone else do the talking.

"My verdict: It's the best travel camera I've ever used."

-Jefferson Graham, USA Today, Aug. 18, 2010

Editor's Choice Award American Photo

αNEX - 5

Best of What's New 2010

Popular Science

2010 Breakthrough Product Award

Popular Mechanics

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-David Pogue, The New York Times, Sept. 22, 2010

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α55

Gold Award

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50 Best Inventions of 2010

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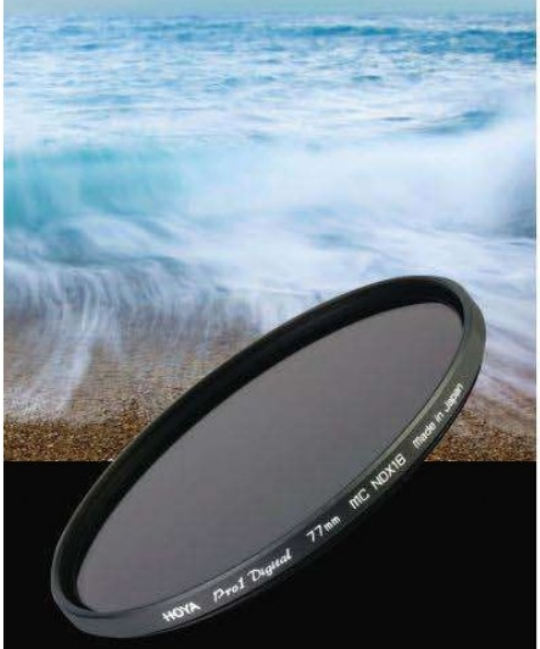
59 THINK LIKE A PHOTOGRAPHER
Working a scene means countless decisions: lighting, optics, focus, tonality. These strategies will help you succeed. *By Peter Kolonia*

CLOCKWISE FROM TOP RIGHT: BEN HEINE; KENDALL KARMANIAN; DARREN WHITE; NILGÜN KARA; GIACOMO PULCINELLI; ALESSIO COLA/FOTOLIA.COM; LUCIE DEBELKOVA

HOYA
PRO1 Digital
Filter Series

ND16
Turn a cloudy day into something beautiful



The ND16 is a dark neutral density filter with a filter factor of 16, meaning there is 4 stop light loss. This is a great filter for slowing down shutter speeds to turn movement into artistic blur, turn motion into beautiful creativity.

Another use of the ND16 would be controlling depth of field. With the strong ND16, a much wider aperture can be used. Wide apertures like F/1.4 and F/1.8 create a very shallow depth of field exquisitely isolating the subject from the background. The creative possibilities are endless with this type of filter.

The HOYA PRO1 Digital ND16 has all the features of the HOYA PRO1 Digital Series such as high quality optical glass, specialized DMC multi-coating to reduce reflections and a low profile filter frame for use on super-wide and telephoto lenses alike.

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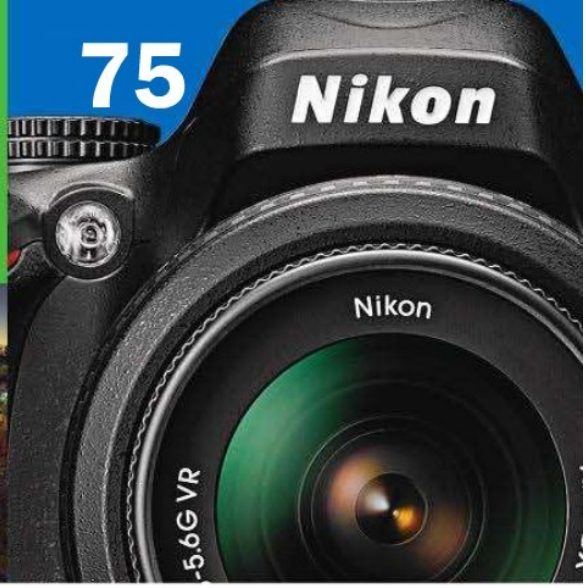

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Get in close or step on back, now you call the shots.

Photo taken with Tokina 16-28/2.8 on Nikon D700

Photo taken by Brett Kennedy

The new Tokina 16-28mm lens is the first in a new generation of full frame (FX) lenses designed for the professional Nikon and Canon digital SLR cameras. This lens has an ultrawide starting point of 16mm and fast f/2.8 making it great for photojournalism or event photography while a zoom range out to 28mm giving the professional photographer a number of cropping and composing options.

Get in close for a dramatic perspective or step back to take in the whole scene. Tokina delivers results.

Tokina 16-28mm f/2.8 lens

NEW Silent DC Motor with GMR Sensor

The 16-28mm f/2.8 lens uses a new silent DC motor that allows the lens to focus faster and more quietly than previous generations of Tokina lenses.

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AT-X 124 PRO DX 11
AF12-24mm f/4

AT-X 116 PRO DX
AF11-16mm f/2.8

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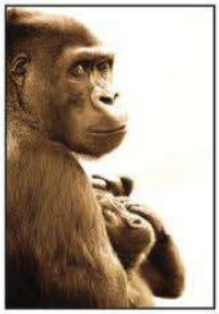

Credits left to right: Chris Heisey, Alexis Burkevics, Eva Gryk

The 18th Annual *Popular Photography* Photo Contest gives photographers the opportunity to win prizes and have their work recognized in the January 2012 issue of *Popular Photography*, the largest photo magazine in the world, as well as on our website, **PopPhoto.com**.

Categories

- ACTION/SPORTS
- ANIMALS
- CITIES/ARCHITECTURE
- LANDSCAPE/NATURE
- OBJECTS
- PEOPLE

- **NEW TO 2011:** PEOPLE'S CHOICE - *PopPhoto* readers will now be able to vote for their favorite image!

Submissions

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ENTRY FEE: $10
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To enter, please visit:
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The Readers' Contest, sponsored by *Popular Photography* magazine, a publication of Bonnier Corporation, is open only to individuals who are sixteen (16) years or older at time of entry, excluding residents of Cuba, Iran, North Korea, the province of Quebec, Sudan, Syria, and any other jurisdiction where this contest is prohibited by law. To enter and for complete Official Rules, visit www.PopPhoto.com/readerscontest2011 between May 1, 2011 and September 30, 2011.

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Feeling bookish?

I've been thinking a lot lately about how photography books come into being, from concept to design to publication to purchase. One reason will become obvious this fall, when *Take Your Best Shot*, my book of photo ideas and tips based on images and advice from Popular Photography, hits stores. Another reason: Participating in portfolio-review events and speaking with photographers about their work has shown me how many of you long to see your work between the clothbound hardcovers of an actual book—and how much thought and labor it can take to get there. Even more so when you want it to sell.

To help you navigate this complicated process comes—what else?—a book. *Publish Your Photography Book*, by Darius D. Himes and Mary Virginia Swanson, came out this spring from Princeton Architectural Press. If you're serious about getting your work into print and into the hands of a wider audience, this will be the best $30 you can spend. You'll get a wealth of practical information, whether you're looking for a conventional publisher, self-publishing, or trying print-on-demand.

In clear, straightforward prose, shot through with insights and first-person accounts from photographers, publishers, book designers, editors, and other experts, Himes and Swanson walk you through every step. They cover the planning stages, explain how different kinds of publishers operate, and tell you what to expect from editors, designers, and the production process. They offer marketing strategies and list resources such as publishing houses, bookstores and dealers specializing in photography, festivals and trade fairs, and blogs and websites.

Their beautifully designed volume is illustrated with examples of successful photography books. They present timelines both for design and production and for marketing—both stretching over a year. And they include a worksheet to prepare before launching your book project.

The questions you must ask yourself are crucial: Why do you want a book of your photographs? Can you describe your proposed book in one sentence, and in one paragraph? Who is the audience for your book, how big is it, and how can you reach that audience?

Himes and Swanson make one thing very clear: Book publishing is not a do-it-yourself proposition. You'll need to tap the skills and expertise of a lot of other people. And their book is a great place to start.

Miriam Leuchter

NEWSSTAND In our lab and field tests (page 75), Nikon's new D5100 proved it has something great for everyone. Photographed by Satoshi Kobayashi.

SUBSCRIBER Using high-key lighting for an arresting portrait like this one by Nilgün Kara is just one of the many ways you'll learn to work a scene (page 59).

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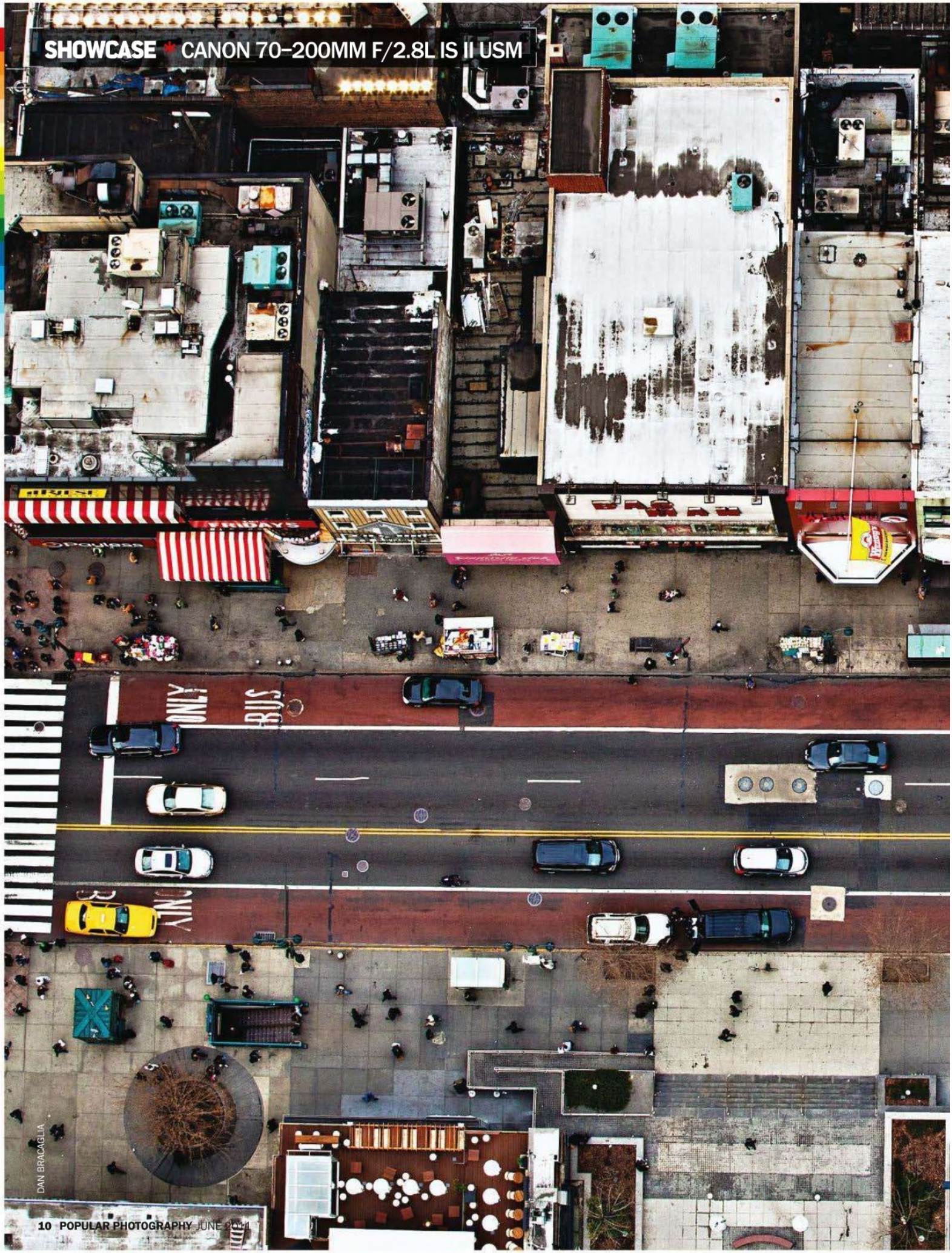

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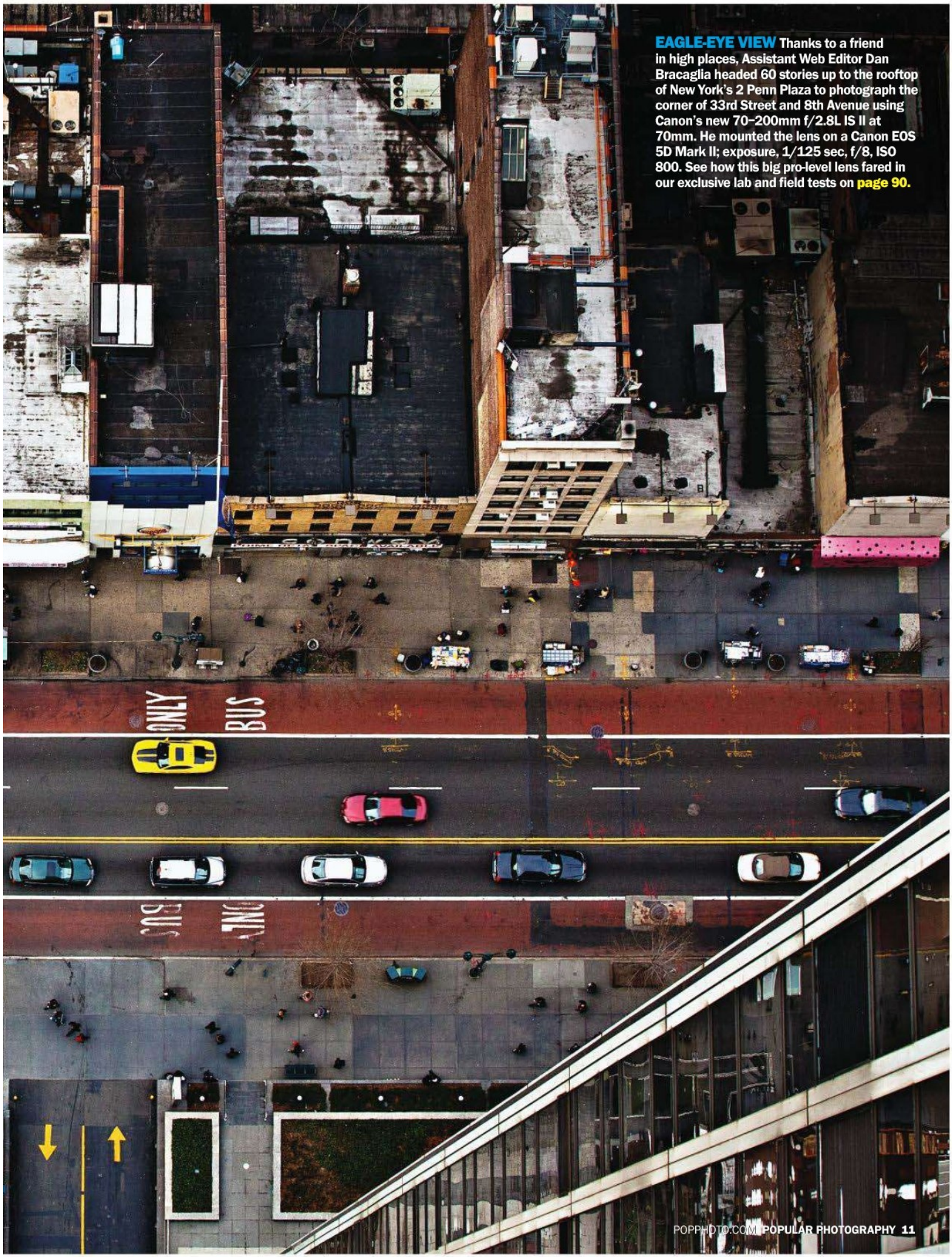

EAGLE-EYE VIEW Thanks to a friend in high places, Assistant Web Editor Dan Bracaglia headed 60 stories up to the rooftop of New York's 2 Penn Plaza to photograph the corner of 33rd Street and 8th Avenue using Canon's new 70–200mm f/2.8L IS II at 70mm. He mounted the lens on a Canon EOS 5D Mark II; exposure, 1/125 sec, f/8, ISO 800. See how this big pro-level lens fared in our exclusive lab and field tests on page 90.

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AN AFFORDABLE, ARCHIVAL PRINTER

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WE WANT THIS

PACK LIGHTS

A two-strobe location lighting kit in a backpack

MULTIBLITZ, the lighting specialist that invented the monolight more than 30 years ago, has excited us again with what may be the most portable monolight kit ever: The Profilux Backpack kit.

It comes with two intermediate-level Profilux strobes and almost everything else needed for location lighting, including the bag—letting you carry a whole studio on your back. The 250 watt-second strobes are German-made, with LED power readouts, optical slaves, six controls, and built-in lightstand adapters. All the kit's contents pack and unpack with absolute ease, and it weighs only 27 pounds loaded.

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JOHN B. CARNETT

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FOR ARCHIVAL prints at home, pigment inks are the way to go. But pigment-based printers can be pricey, especially if you won't need the extra gray inks they contain. The new Epson Stylus Photo R2000, which uses the UltraChrome Hi-Gloss 2 ink set and replaces the R1900, is the most affordable pigment-based printer the company makes, in part because it's not designed for b&w. New in the R2000: AccuPhoto HD technology for smoother transitions between colors and less banding, along with higher capacity ink cartridges to yield 50% more prints than the ones in the R1900 did.

Epson Stylus Photo R2000
$500, estimated street
www.epson.com

DAN BRACAGLIA (PRINT)

MOBILE PHOTOS

Send your pictures straight to your smartphone

PHOTOGRAPHERS frequently shoot with cell phones, even though the cameras are fairly horrible, primarily because they make it easy and quick to offload and share. But Eye-Fi's new Mobile X2 card may provide the best of both worlds: Shoot your usual camera with the Eye-Fi's card in it, and, whether or not you're connected to a Wi-Fi network, it will offload your images to your smartphone or tablet. Eye-Fi has free apps for iPhone, iPad, and Android to let you upload and share, or you can use apps from Flickr or Facebook. Running out of room? Turn on Endless Memory mode, and your card will automatically free up space once your files have been safely delivered.

Eye-Fi Mobile X2 8GB SD card
$80, estimated street
www.eye.fi

NEWS FEED

> DiJiFi and MiMedia have partnered in a service to digitize old photos and videos and store them for safekeeping.

> Color, a free iPhone and Android app, can connect the phones of other Color users in close proximity and allow instant photo and video sharing.

INSIDE TECH

Direct Mode

Eye-Fi's new Mobile X2 card has Direct Mode, the tech that allows you to send full-resolution photos straight from your camera to your favorite device. But users of any of Eye-Fi's earlier X2 cards will be able to take advantage of the technology, too, with a free software update. You'll need to install the accompanying apps on your device, as well.

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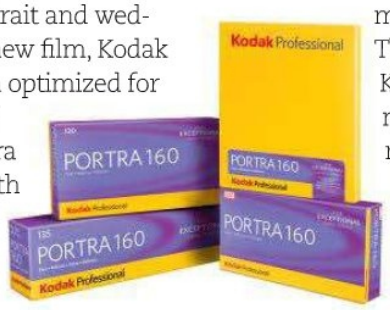
SHARPER FILM

A single new Portra replaces the NC and VC versions

KODAK'S NEW Professional Portra 160 film, billed by the company as having finer grain and better sharpness than its predecessors, is aimed at portrait and wedding pros. The new film, Kodak states, has been optimized for reproduction of skin tones. Portra 160 replaces both Portra 160 NC (low contrast, soft color) and Portra 160 VC (higher contrast, vivid color), as most printing today is done digitally, allowing for color and contrast adjustments in software. Those who fret about Kodak's commitment to film should note that Portra 160 will be available in 35mm, 120/220, 4x5, and 8x10 sheet film.



Kodak Professional Portra 160 $6, street, 36-exposure 35mm www.kodak.com

NEW FOR NX

A barrage of lenses for Samsung's NX platform

SAMSUNG SHOWS it's committed to NX, its interchangeable-lens compact format, by rolling out five NX-mount lenses by December. Three are stabilized and two are high-speed primes—a 16mm f/2.4 and 85mm f/1.4 with "serious enthusiast" written all over them.

The first to launch—in June—will be an 18–200mm f/3.5–6.3 11X zoom with image stabilization and an AF motor Samsung claims is quiet enough for video. The full-frame equivalent of 27–300mm, this 20-ounce, 4-inch (contracted) lens also sports Samsung's clever i-Function barrel switch to let you adjust exposure settings from the lens and preview them in the viewfinder.

Samsung 18–200mm f/3.5–6.3 lens
$800, street
www.samsung.com

NEWS FEED

> Buy a set of Zeiss manual-focus lenses from 21mm to 85mm for your Canon or Nikon DSLR, and Zeiss throws in a waterproof hard case with custom holes in the inner foam for the lenses—a deal at about $6,000.

> The oldest contemporary newspaper for the African-American community, *The Philadelphia Tribune*, has archived its photographic collection online.

> There's an anthem to Kodachrome courtesy Paul Simon, so why not a movie? DreamWorks is planning one, about a father and son trying to get their last roll processed in time.

IPAD COURTESY OF APPLE

Photoshop Touch

Over the years, many manufacturers have attempted to make devices to give Photoshoppers non-keyboard control over their software. Mostly, they bombed. But with the new Photoshop Touch Software Development Kit, programmers can create apps that will allow the iPad, iPhone, Android, and Blackberry to control Photoshop CS5 on your computer. Our fave early offering? Adobe's Nav for iPad (above). It acts as an auxiliary toolbar, and may free you from the keyboard for good.

THE LOWDOWN

3D SOLDIERS ON

Though only about a million 3D televisions have sold, Panasonic, Samsung, and Sony show no signs of slowing down on 3D. Sony has its TD10 3D camcorder, and nine Cyber-shot models have 3D still capture. Samsung even offers prescription 3D viewing glasses for its TVs. And Panasonic is pushing the 3D lens for its Micro Four Thirds cameras, and has 14 3D TV models in its lineup.

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MACRO LIGHTS

MACRO PHOTOGRAPHY is fun, but lighting can be challenging when you're so close to your subject. In the studio, full-sized strobes are often too large, and outdoors, midday light can become too harsh. Here are some specialized solutions for making macro lighting easier, indoors or out.

$380 Sigma EM-140 DG Available for Canon, Nikon TTL, Pentax, Sigma, and Sony flash systems, Sigma's ring flash mounts to the front of your macro lens to put the light next to your subject. With two flash tubes, it lets you dial in lighting ratios to show off the contours of whatever you shoot.

$200 Orbis Ring Flash Technically an adapter, the Orbis attaches to almost any hot-shoe flash and directs the light through its circular front panel. While it's intended to create circular catch lights for portraits, you can use it with a remotely triggered flash unit to surround a small subject with light.

$60 Olympus Macro Arm Light Though it's only for Olympus Micro Four Thirds cameras (with an accessory port), the MAL-1 is one of the most convenient lighting accessories for macro we've seen lately. The bendable arms direct the light individually, and the unit is powered by the camera's body.

$49 Joby GorillaTorch Blade The bendable legs on this LED light make it easy to position on the tiny subjects shot in macro photography. Like most LED sources, it has a cool color temperature (10,000 Kelvin), but stack 1/4 CTO and 1/8 CTO Rosco gels in front, and it becomes a workable 5,000K.

$46 Creative Light Deluxe Translucent Reflector Since sunlight tends to be harsh and directional most of the day, a translucent reflector like this handheld one can help you get that floral close-up any time. If you position it just right, or use a second one, it can also block the wind.

NEWS FEED

>Shooting in a quiet place where DSLR noises are prohibited? AquaTech sound blimps for Canon and Nikon cameras reduce noise by 98 percent.

>Now you can use the sensor-cleaning kit used on the International Space Station. LensPen's SensorKlear Loupe Kit has an illuminated loupe whose access port lets you clean the sensor using the SensorKlear II pen.

>Canon's new compact XA10 professional HD camcorder can capture in total darkness via infrared.

>RigWheels look like tiny railroad car trucks and can be attached to almost anything (a plywood sheet, for instance) to make a rig for video dolly shots.

> Expo-Imaging's Rogue Grid is a set of stackable honeycombs that can be fitted to most any shoe-mount flash.

TOOLBOX

CLOUDY

Store your data on this drive for access anywhere

"CLOUD STORAGE" is a cute way of describing data that's stored on a server somewhere and accessible via the internet from any device. But cloud storage usually requires monthly fees to a service, and upload times from your home to the "cloud" can be slow. Buffalo's Cloudstor ($160–260, depending on specs; www.buffalocloudstor.com), has a novel solution. It's a network-attached hard drive that you can access anywhere. And unlike some other NAS drives, it's made to be easy to set up and access from a web browser. When you're away from home, you can use the drive remotely as if it were plugged into your laptop. Plus there's photo and video viewing for guests. Comes in 1TB and 2TB models, as well as a pro version.

92

The average number of digital-camera photos taken by U.S. shooters in three months.

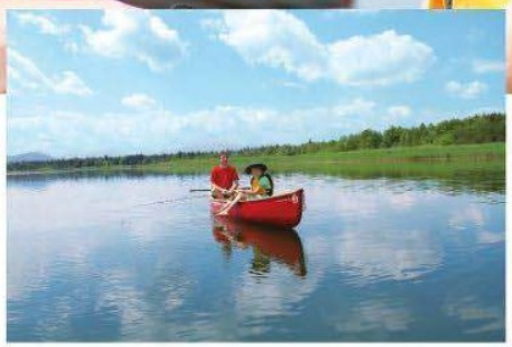
233

The number taken by Chinese shooters in the same period.

SOURCE: InfoTrends

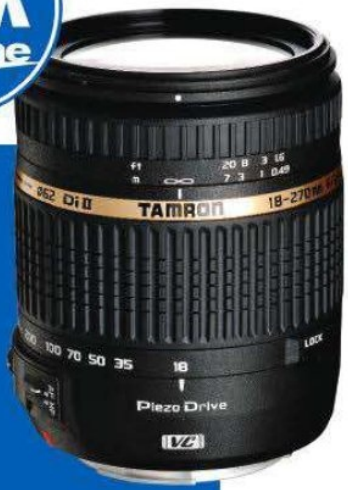
SIXTIETH ANNIVERSARY

Focal length: 270mm (equivalent to 419mm) Exposure: F/6.3 1/640 sec ISO320 WB: Auto Handheld



Focal length: 18mm (equivalent to 28mm)
Exposure: F/5.6 1/1600 sec ISO320
WB: Auto Handheld

15x all-in-one



Reveal more of your digital SLR's potential with the world's lightest, most compact 15x zoom[i]. Featuring fast, precise PZD (Piezo Drive) piezoelectric auto-focus and Tamron VC tri-axial image stabilization for sharpness you can see.

NEW 18-270mm F/3.5–6.3 Di II VC PZD

(Model B008) Di II PZD VC Compatible mounts for Canon, Nikon and Sony* DSLRs. Includes flower-shaped lens hood.

i For high-zoom-ratio DSLR camera lenses with 15x magnification, as of December 2010. (Source: Tamron)
* Sony digital SLR camera bodies rely on the camera's image stabilization function. For that reason, the VC (Vibration Compensation) image stabilization function is omitted from lenses manufactured with Sony DSLR mount
* This lens is designed for use only with APS-C sensor digital SLR cameras.

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PHOTO CHALLENGE

DESERT GLOW

Backlighting makes the translucent visible

FOR A BACKLIT picture, our March Challenge, Phoenix-based Paul DeCesare had a perfect subject: cholla cacti. "The spines are nearly transparent, so when illuminated, they glow wonderfully," the 49-year-old software architect and photographer says. "Daytime photos of cholla don't do that justice."

He shot during a series of early-morning visits to the foothills of the McDowell Mountains. An iPhone app, The Photographer's Ephemeris, let him plan where and when the sun would rise.

Scouting the mountains, he ran across this unusually dense cluster of cholla and recognized that they not only made a great fore- and midground subject, but that a golden backdrop would light them the way he wanted. Just before dawn, he composed as quickly as he could with his Canon EOS 5D Mark II and 16–35mm f/2.8 lens on a tripod, then shot eight exposures at sunrise for an HDR image. It took all eight in Photomatix to make a final composite. But he made the transparent spines luminous, the look he was after. *—Lori Fredrickson*

Paul DeCesare merged eight exposures to create this naturalistic HDR image.

PAUL DECESARE

NEXT PHOTO CHALLENGE Our feature story on how to work the scene gave four tips for shooting high-key images (page 66). Try your hand at high-key lighting by June 30, and you could get $100 and your photo and story here. Go to PopPhoto.com/contests to read the rules and upload your photo online.

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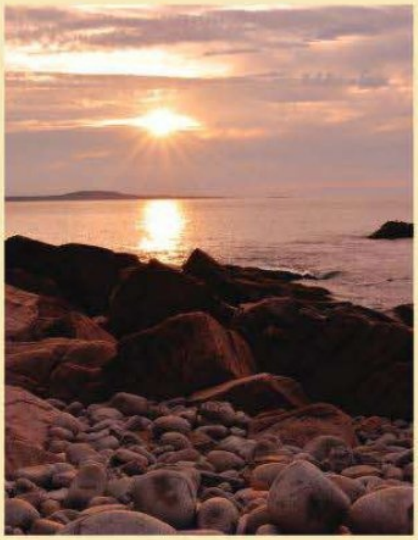

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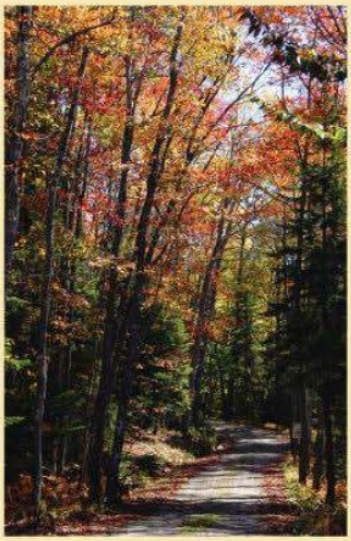

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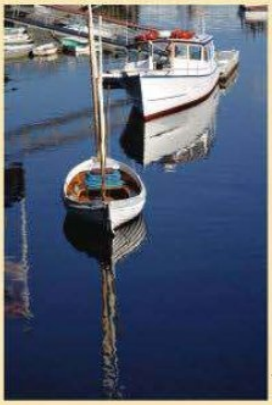
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Prepare to capture scenes of breathtaking beauty during your trek to Acadia National Park. Here, breezes from the Atlantic glide across miles of rocky Maine coastline, thick with evergreens, lobster boats bob in gentle harbors, and whales are a common sight. With professional photographers Daniel J. Cox and Layne Kennedy as your mentors, your portfolio will soon be brimming with images of nature at its most sublime.

Late September in this first national park east of the Mississippi allows you to stand at the threshold of peak fall foliage. And what better way to photograph the scenery than to ascend nearby Cadillac Mountain. Not only is its summit the tallest point on America's Atlantic coast, it is also the first spot where the sun rises on the country. Wisps of clouds stretch above the Porcupine Islands and Frenchman's Bay, begging for panoramic framing. Lichen peeks through cracks in the smooth granite, offering an opportunity for a close-up of the stunning, rugged landscape.

Next, depart for Bass Harbor and turn your camera from the park to the people who set this place apart. Add character to your book with images of lobstermen and their bounty. Fill your lens with fishing boats or focus on rows of lobster traps stacked along the worn, wooden pier. Aboard a private vessel to the Bass Harbor Lighthouse, don't miss the eagles, gulls and seals that ride the air and ocean alongside. End the day with the setting of the sun against the white beacon—snap shot after shot as the sky fades from gold to blush to starry night.

The adventure continues the following day with sunrise near Otter Cliff. Peer through the viewfinder as the surf pounds against the 110-foot-high precipice. The crystal clear water offers inspiration at every turn—get great action shots as you focus on kayakers against the mountainous backdrop. End your day by photographing Bar Harbor at dusk. The quaint city's lights reflect against the bay, and your prints will illuminate why this town was originally called Eden.

Bring your sense of adventure on the final day. Though the sky may be blue and cloudless, you'll hear an earth-shattering clap at Thunder Bay, where the waves—sometimes towering 40 feet high— crash against the inlet,creating a sound that gives the landmark its name. You'll want to have your camera at the ready for a whale watching excursion, as dolphins playfully jump in the wake of the boat; puffins sun themselves on the nearby rocks, and humpbacks crest the surface before diving back below with a massive splash.

Whether you are a novice or seasoned photographer, this trek will broaden your skills and invigorate your passion for photography. This is an opportunity you don't want to miss—sign up today!

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TOM JENKINS

The Aviator

Taking to the skies to shoot aircraft in flight

Who buys your photos? My primary business is with corporate aircraft, like Gulfstream Aerospace and Learjet, for advertising. I also supply stock photos for magazines—I've done more than 1,000 magazine covers over the years.

Describe your typical shoot. First and last light are best. Everything on the ground casts a shadow, which deepens the tone of the ground—when you're 2,000 feet above, the lighter-colored airplane pops. If sunrise is at 7:30, I get up at 4:30 and meet the pilots at 6 for a briefing on the artistic objectives, and then the pilots agree on how to shoot it safely. We have to be up in the air and in position before sunrise or stay up past sunset.

Sometimes we remove windows, doors, or hatches so I'm not shooting through glass, and I have a headset so my pilot can follow my directions—what altitude and where I want to go. Then he relays messages to the other plane, which has formed up either behind or to the side of us. I direct by increments of feet—"right 20," or "down 10." I'll have him put us into orbits or whatever works best with the lighting, background, and the angle I want to capture.

The part high up lasts about half an hour, then we drop down about 500 feet for shots closer to the ground. We stay 100 feet above to shoot the target plane landing, then follow up with ground and interior shots. We're done by 10 a.m.

Do you need special training? Just like any type of photography, it has particular skills to learn. Everything happens quickly when you're in the air. You're usually flying at about 200 miles per hour, so you have to anticipate well in advance. The aircraft can do all kinds of maneuvers, so you really have to understand the medium, and a lot of that comes from experience. I started training as a pilot years ago, which helped me understand what I was asking the pilot to do in order to choreograph a photo shoot.

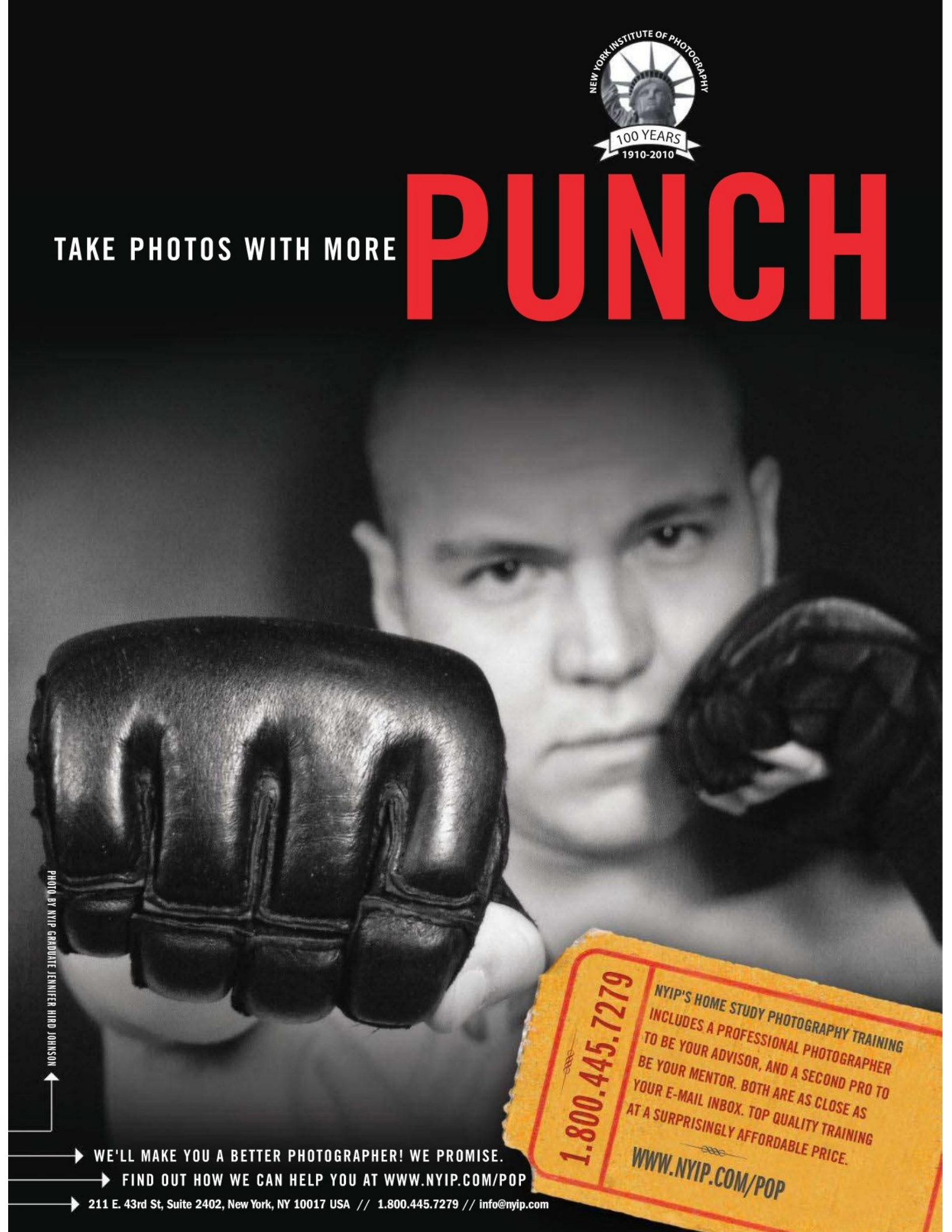
Wichita, KS-based pro Paul Bowen, 64, has been capturing stunning aerial shots of planes for more than 30 years. Check out some of his shots at PopPhoto.com/Bowen, or www.airtoair.net.

What do you fly in? I shoot out of many kinds of airplanes, but the B-25 Mitchell bomber is my platform of choice. I've chartered 20 of them—there are about 35 flying in the world. It's a fabulous airplane because we can remove the tail cone where the gunner used to sit, and the way the tail sticks out lets me shoot even with a fisheye lens without getting any of my plane in the shot. It's also fast—it flies at about 200 miles per hour, so it works for shooting corporate jets.

Do you move around? In smaller planes there's not a lot of room, but in a B-25 I can shoot from the tail cone and then crawl behind the wing into an area called a waist position to shoot out the side emergency exit. I can also climb down into the nose, under the pilots, so we can chase a plane to shoot it from behind.

What gear do you use? I've been one of Canon's Explorers of Light since the program's inception. My main workhorse is the EOS-1Ds Mark III with the 24–105mm and 70–200mm IS lenses, plus a Speedlite 580EX II for fill flash. I also use the 5D Mark II, and the 100–400mm lens comes in handy if you're flying with a pilot who can't bring the plane in close. To compensate for the vibration on a propeller plane and get a longer shutter speed for a full propeller arc, I'll use a handheld gyro.

What's the hardest part? Even outstanding pilots can't necessarily fly a photo shoot—they have to have formation flying experience. The cold and the vibrations and the low light before dawn make shooting very challenging. With the doors or windows removed, it's windy and cold—often below freezing. I have to wear ski gear and gloves. It can also be very disorienting going around in circles looking through a lens. The first time I did it I got airsick. But fortunately that was the last time, too. *—Interview by Kathleen Davis*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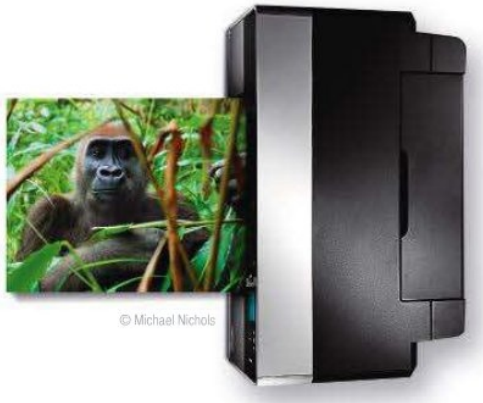

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Bhutan Rocks

It is a common misconception that you repeated in your blurb on Bhutan ["25 Best Places to Photograph," April 2011] that the government limits the number of tourists who can visit the country. This is simply not true. The high cost of the daily tariff is certainly a limiting factor, but the government would like to have many more tourists come to visit. That said, it is definitely a very photogenic country. The festivals are amazing and it is a landscape and nature photographer's dream come true. And the architecture is unique and monumental. Traveling around the country is a bit arduous given the lack of roads other than the "highway" that is carved into the side of the mountain and thus very winding. **Glenn Auve**
Arlington, VA

DAN BRACAGLIA

FORGIVE ME if I take your sidebar in "One Perfect Lens" (April 2011) a step further. On an APS-C camera, the [full-frame] 50mm f/1.4 lens would offer very similar performance to the 85mm f/1.4 lens mounted on a full-frame camera. One major advantage is price. The newest AF-S 50mm f/1.4G Nikon lens can be purchased for one-third the price of the 85mm counterpart. The other major brands show a similar difference in price. The 50mm Sigma costs about half what Sigma's 85mm lens costs. **Sam Feinstein**
Bridgeton, NJ

CONTINUES ON PAGE 28

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CONTINUED FROM PAGE 26

I READ with great interest the article on 85mm lenses, which brought up a few questions: Since I am using a Sony Alpha 55 (APS-C), would I be better off buying an 85mm that scales up to 128mm, or should I go with a 50mm/55mm that scales up to 85 as your article opens with? And since most of the depth-of-field sharpness issues are at the widest aperture, should I go with the Sony 85mm f/2.8, which is considerably less expensive than the equivalent f/1.4 lens?

Tim Evans
Baltimore, MD

EDITOR'S NOTE: *Any choice of lens depends on the types of photos you shoot. Using a full-frame 50mm makes sense if you want the short tele distance that's best for portraits, but not for more distant subjects. As for the maximum aperture, it depends on how much the extra 2 stops of low-light capability are worth to you—though f/2.8 still makes for a fast lens.*

YOU GUYS are funny—no, really, I mean it. For example, in the April News Feed you state, "We're tired of the fad of making your well-exposed, color balanced images look weathered." But then [in You Can Do It], you feature a scene that looks as if it could have been taken in 1959. That is pretty funny. And while I find the pic itself pretty cool, it looks to me as if it has been highly processed to make it look, well, weathered and old...hmmmm, or hahahaha. Just saying... Love the magazine, by the way.

Bryan Hightower
Stateline, NV

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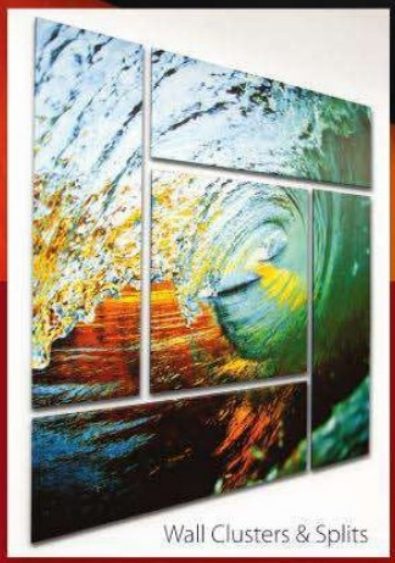
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Getting Good Ink

Q Two Canon printers, Pixma Pro9000 Mark II and Pro9500 Mark II, seem very similar, but one uses dye-based inks and the other uses pigment-based inks. What would the difference(s) of these be to an average photographer who just wants to get nice prints? A Canon rep noted that the pigment-based inks are often used for archival applications, but as far as I'm concerned, something that lasts "only" 20 years is more than enough for me.

Robert Frowenfeld
Katonah, NY

A *If you're not looking to create archival prints, then the dye-based Pixma Pro9000 Mark II should suit you fine. Not only does it cost less than the pigment-based Pro9500, but a full set of inks for the Pro9000 (an 8-ink printer) costs about $35 less than a full set for the Pro9500 (a 10-ink printer). When we tested the older versions of these back in 2008, both produced very pleasing prints, though the Pro9000 made color prints significantly faster than the Pro9500 did—another reason you might like it better.*

Q **RAW SIZE**
Can you explain to me why the Canon EOS Rebel T2i's 18-megapixel sensor produces a RAW file of approximately 24–26 megabytes?

Charles L. Scavron
Ridgefield, CT

A *Megapixels are commonly confused with megabytes. The megapixel count is simply the number of light-sensitive dots on the sensor. The RAW file includes the recorded light intensity from each pixel—each taking up several bytes—plus information on exposure, color balance, contrast, and so on. RAW file sizes are thus significantly larger than megapixel counts.*

Q **OUT, DAMNED SPOT**
Recently this black dot started to appear on my photos from my Canon EOS Rebel XTi. I assume it's some kind of dust spot, but I don't want to go digging around the inside of the camera without knowing what I'm doing.

Daniel Albanese
New York, NY

A *Several editors here looked at the sample images this reader sent to us, and we immediately suspected a dust blob on the sensor—or, to be correct, the glass plate in front of the sensor.*

But rather than guess, we had Albanese bring his camera to the Popular Photography Test Lab, where Technical Editor Philip Ryan examined the sensor with a LensPen SensorKlear loupe. Sure enough, we found a pretty large piece (4–5mm) of matter that was also somewhat gunky—what we call, in technical jargon, schmutz. *We were able to dislodge it with a handheld blower, but, as there was still residue on the sensor, we directed him to a camera repair shop to have it professionally cleaned. (We are wary of do-it-yourself cleaning in cases like this.)*

To avoid this sort of mishap, always keep a lens or body cap on your DSLR. Keep a rear cap on any lens not mounted on a camera. Avoid changing lenses in any adverse conditions or near sloppy eaters, and try to keep the rear of the lens and front of the camera body tilted downward while changing a lens. Should you find dust on the sensor plate, use a blower to remove it. Don't try to remove persistent schmutz yourself—let the camera maker's customer service department or a camera repair shop do it.

What Should I Buy?

Reader Brittany Black, who wants to start doing wedding photography with her Canon EOS Rebel T2i, asked us for a recommendation for an all-in-one zoom, adding, "I am on a very tight budget." We told her that she would soon find out why pros use high-speed lenses (and multiple camera bodies), but in the meantime we suggested the 18–135mm f/3.5–5.6 Canon EF-S IS ($450, street) or the 18–125mm f/3.8–5.6 Sigma DC OS ($340, street). Both have decent optics and effective image stabilization, which she'll need with those slow-ish apertures. But we'd also swap out at least once in a while for a 50mm f/1.8 Canon EF II, which, an 80mm equivalent on the Reb, is a near-perfect portrait lens and a steal at $125.

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Perfect Time

This month's winners all considered the importance of a moment

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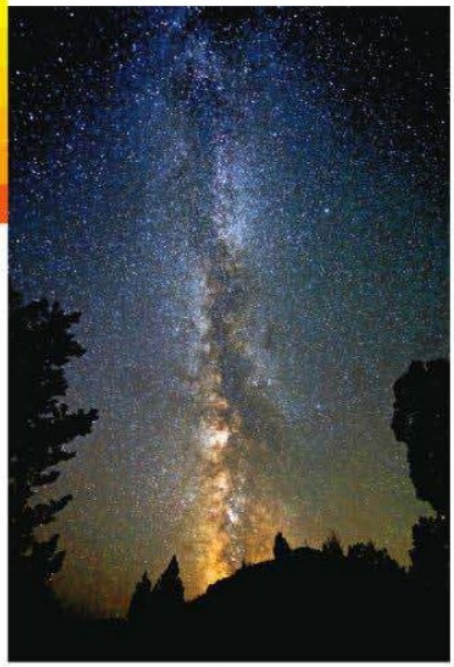

3rd Place $100 Prize

LARRY ANDREASEN, 56, SERVICE TECHNICIAN, TILLAMOOK, OR

"I took this photo during the Perseid meteor shower back in 2007, at Painted Hills National Monument, during the peak of the star event. Painted Hills is my favorite location for astrophotography: Because of its distance from light pollution, you're able to capture more visible stars. I also photograph it in daytime to capture the many eras in its geological formations. I like in this image that both star and earth features are displaying history of time." (flickr.com/photos/21613633@N07) **TECH INFO:** Tripod-mounted Nikon D3 with 14–24mm f/2.8G AF-S Nikkor lens; 1/40 sec at f/2.8, ISO 4000. Edited in Adobe Photoshop CS3.

2nd Place $200 Prize

TRAVIS ABERLE, 37, INTENSIVE CARE NURSE, LENEXA, KS

"On a family trip to Washington D.C., I was impressed by the Metro tunnel architecture. I particularly liked the symmetrical lines of this station, so on one trip through I stayed on the platform with my camera, waiting for a train to complete the image. Pulling it off was all about timing—I didn't want passengers stepping on or off the platform cluttering up the foreground. But you have only seconds of clear platform before the train exits the station." (flickr.com/photos/bucky98) **TECH INFO:** Canon EOS 30D with 18–55mm f/3.5–5.6 Canon EF-S lens; 1/6 sec at f/3.5, ISO 100. Converted to b&w in Adobe Photoshop CS4.

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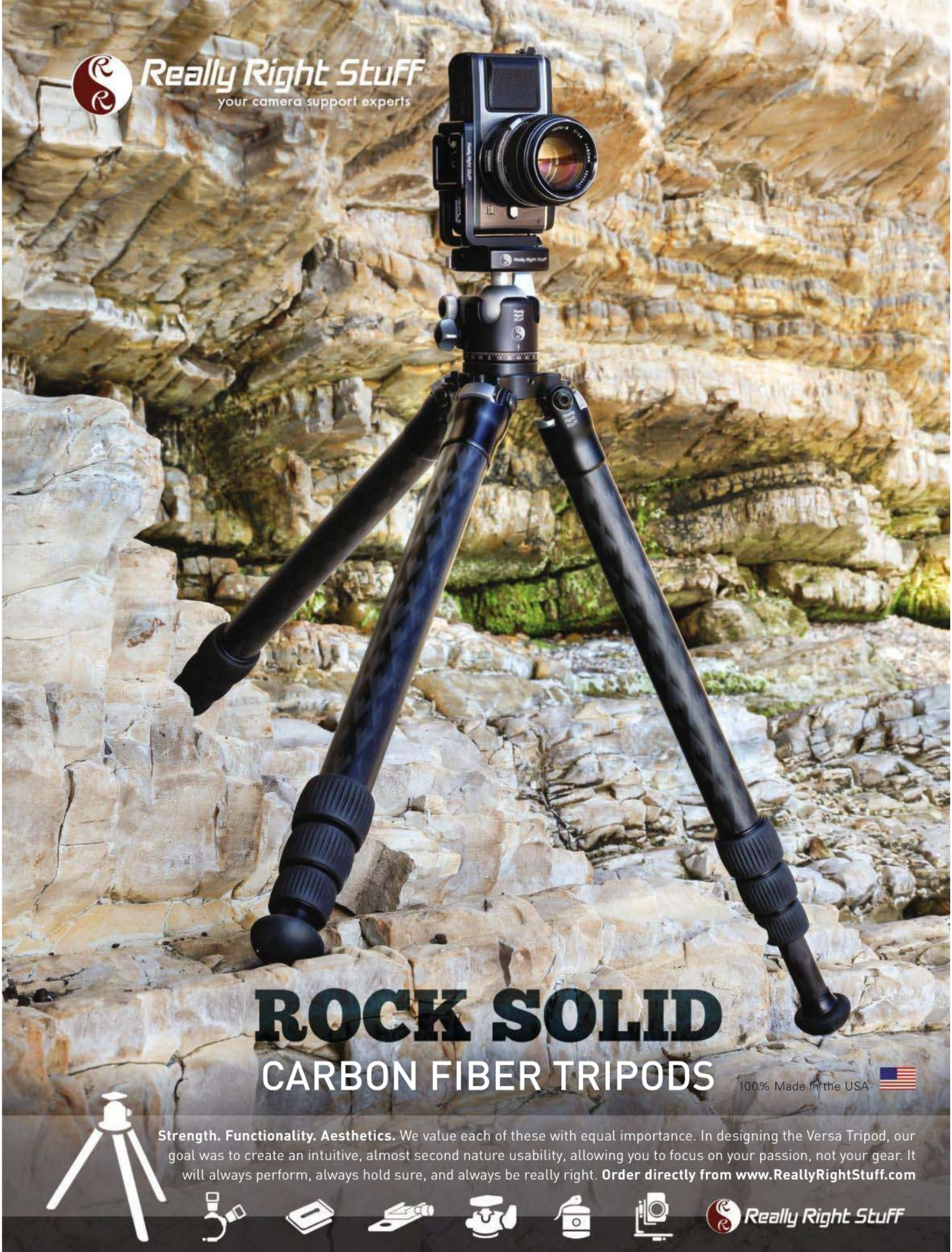
1st Place $300 Prize

BARONESS DANUTÉ, 50, PHOTOGRAPHER, PARIS, FRANCE "This past January I traveled through the Okavango Delta, in Botswana with five other photographers. Photographing in the bush is always both unpredictable and exciting: You can't anticipate what might happen, but wildlife never waits for you, so you'll only have seconds to capture it. At one point on our second day we heard a rumbling like thun-

der, indicating there were elephants nearby. One appeared and then charged us, and we scrambled in a different direction—I had my camera on continuous and was clicking like crazy. If I hadn't been, I might not have been the one to capture this unique moment of birds put into flight as another elephant stepped out of the trees." (www.photographybydanute.com)

TECH INFO: **Nikon D3 with 70–300mm f/4–5.6 VR AF-S Nikkor lens; 1/400 sec at f/8, ISO 640. Cropped slightly in Adobe Photoshop CS5.**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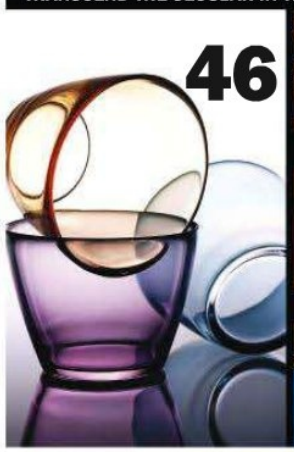

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CREATIVE THINKING

FOOD PARADE

One day to shoot a restaurant's whole menu

STEVE ANDERSON

FOR LOS ANGELES food photographer Steve Anderson, a new Scottsdale, AZ restaurant's need for images of its complete menu offered him a challenge he couldn't pass up. Why photograph every menu item? Because customers of the restaurant who would first be attending films at a neighboring theater would also be ordering dishes on iPad menus with choices beamed wirelessly beamed to its kitchen, and making their selections based on Anderson's images. For Anderson, the creative challenges were both logistic and aesthetic.

Anderson worked with a Canon EOS-1Ds Mark II and 24–105mm f/4L lens. Exposure: 1/40 sec at f/5.6 and ISO 320.

When bidding for the job, he knew he would have to devise an efficient system for handling

a nonstop procession of food and drink. The system would have to allow him to style, light, and capture almost 40 dishes reflecting a vast array of colors and textures in single day—giving him an average of 12 minutes per subject. In Anderson's favor: The restaurant's chefs plated their own creations, and the food came straight from the kitchen, camera-ready.

A huge supporting cast helped with the logistics. The entire kitchen staff was at his disposal, including three chefs, three sous-chefs, and their assistants. The restaurant's hostess managed the shot list and acted as a traffic cop. Serving staff moved dishes on and off the set, as well as cleaned up and staged backgrounds. "A nonstop supply of Red Bull helped, too," Anderson says.

His lighting setup helped him with the aesthetic challenges. It consisted of a Profoto Pro-B2 1200Ws powerpack and a couple of strobe heads. He set one in a standard reflector. He aimed the other through a Matthews 8x8-foot white silk in a flexible frame.

Look at his crème brûlée. The dish's defining feature is its crispy, sweet top shell. Anderson's unmodified, directional Profoto light accentuates the texture and the translucency of its glossy surface. Firing down and from behind on the right, this hard light also highlights the sugar crystals sprinkled on top. The softer light behind the silk, mounted straight up and down just off camera, provides subtle fill from the left. Looks good enough to eat, right?

His client agreed. After the first shoot, the restaurant hired Anderson two more times over the next six weeks. Sweet. *—Laurence Chen*

FIX IT FAST

Space Shot

Sometimes, uncropping beats cropping

LINDA MORLEY-WELLS

Photographer Linda Morley-Wells used a 70–200mm f/4L Canon EF IS lens on her Canon EOS 5D to make the shot at 1/500 sec at f/5, ISO 640.

THE FIX IT Fast Team almost always ends up cropping an image, but when we saw Linda Morley-Wells' quiet image of a swan, we felt it needed more space. Specifically, negative space that serves a function—here, added to the upper right to better balance the composition and place the swan closer to a true Rule of Thirds point.

In Adobe Photoshop CS5, it was a simple matter of extending the picture canvas, then using Content Aware Fill to add more water surface. While we were at it, we boosted contrast very slightly using Curves.

Total time fixing: 7 minutes.

A postscript: The Sea Ranch, CA, photographer later told us, "I had taken two shots, and after I submitted this one to Pop Photo, I decided I preferred the other one—where I left more space on the right side of the photo." Just goes to show you. *—Dan Richards and Debbie Grossman*

PROBLEM SOLVER **GEOTAG YOUR PHOTOS AFTER YOU SHOOT**

When geotagging images first hit a few years ago, we were skeptical. But now more cameras are tagging photos with the geographic coordinates at which the image was shot, and more online image hosts are supporting it. What's great about this? You don't have to own a geotagging camera or GPS dongle (like Sony's GPS CS3-KA, right) to join in. If you didn't record coordinates when you took a picture, add them later by dragging the photos to appropriate locations on maps at websites such as Flickr, Panoramio, and SmugMug. Now automatically geotagged, the images can be useful for traveling photographers, as described in "You Can Do It" this month. Another use? You can geotag pictures of cool, out-of-the-way bars or clubs to help friends locate them.

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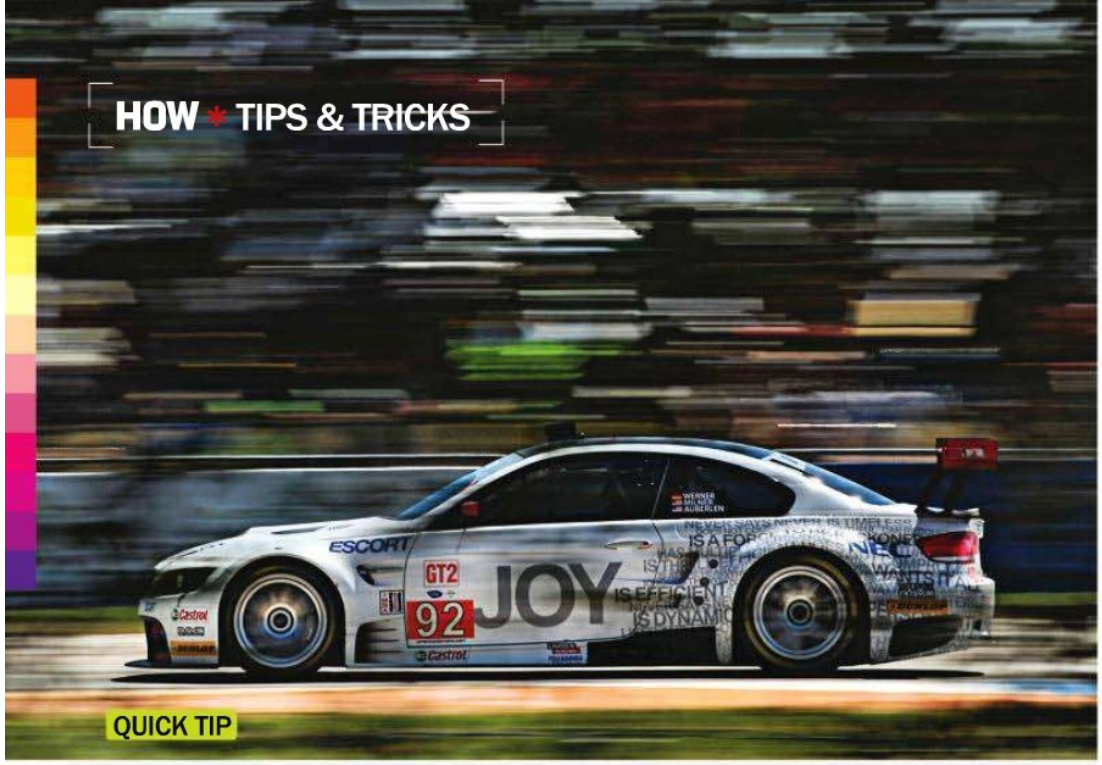


QUICK TIP

Peak Pan

How to follow a moving subject perfectly every time

RICK DOLE, a Florida pro who specializes in automotive photography in most of its forms, says the secret of a good pan is like that of a good golf swing—it's all in the follow-through. "In golf, a smooth swing is key. You don't hit a golf ball without following through. The same is true with panning."

Panning your camera with a moving subject, he reminds us, serves at least two purposes: It conveys a sense of velocity or motion by adding streaked lines to the scene, and it cleans up clutter by blurring everything that's not moving in your composition.

"My technique for panning is fairly simple," says Dole. "I find a background that contrasts with the color of the car, and as it approaches I stand with my feet and lower body pointing directly in line with where I'll fire the shutter. I twist my upper body toward the approaching car, and track it in the viewfinder, smoothly untwisting my upper body until it's directly in front of me. That's when I fire the shutter because, when it's parallel to the camera, the car will be sharpest."

—Peter Kolonia

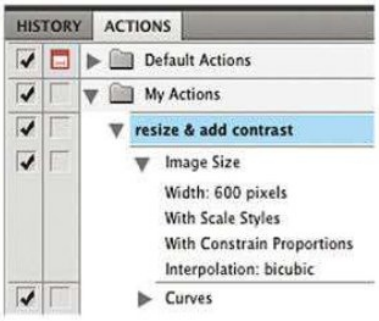
Rick Dole panned with this BMW M3 GT during the 2010 12 Hours of Sebring event in Sebring, FL. He used a Nikon D300s with a 70–200mm f/2.8 VR Nikkor lens and 1.4X teleconverter at 1/60 sec and f/18; ISO not recorded.

RICK DOLE

30-SECOND SOFTWARE

HOW TO MAKE AN ACTION IN PHOTOSHOP

If you have to do one thing repeatedly to a set of pictures, your best bet is to make an Action. You can record a set of tasks, then play back the Action to apply them to any image. This is great for resizing a series of images, for instance, or applying the same Curves adjustment to a whole shoot. To make one, go to Window > Actions. Hit the New Action button and name it. The red record button will be set to "on" automatically, so start performing your tasks on your open image. Everything you do while it's recording will be part of your Action. Hit the stop button when you're done. To run it, just open an image, highlight the Action you want, press play, and watch it go.



What's This?

Meter pattern selecting button

▶**What it does:** Toggles through your camera's metering pattern options. They usually include variations of evaluative, centerweighted, and spotmetering.

▶**How to use it:** Press the button and, while glancing at the meter pattern icon in the camera's LCD panel, spin one of your main control dials to set a desired pattern.

▶**When to use it:** When pictures are lighter or darker than you expect. The evaluative mode is usually suitable for general shooting. Centerweighted is good when your primary subject is center frame. For precise exposure of a crucial object in the scene, try spotmetering.

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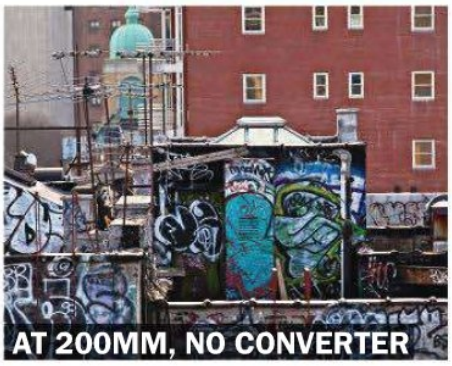


AT 200MM, NO CONVERTER

Teleconversions

Think of them as optical space savers

JUDGING FROM the technical questions we get from readers, there is a lot of misinformation about teleconverters floating around the internet (no surprise). Here are some answers to these questions.

• **IMAGE QUALITY?** Any addition of an optical accessory to a lens will increase the likelihood of image degradation. With top-quality converters used on recommended lenses, however, loss of image quality is often slight enough to be negligible. The best practice is to use manufacturers' converters with their lenses—Canon with Canon, Nikon with Nikon, Sigma with Sigma—and to use them only with the recommended lenses. They're listed on the respective websites. As for using a teleconverter with a kit zoom or all-in-one (18–200mm, etc.), forget about it. And with cheap third-party teleconverters, you get what you pay for.

• **WHICH IS BEST?** Most pro shooters stick with the lowest-power ones, the 1.4X's. Why? Teleconverters always render the lens dimmer. It's an easy calculation: Multiply the converter power times the lens' maximum aperture setting. A 1.4X converter on an f/2.8 lens renders it effectively f/4 at widest aperture. A 2X will make the same lens f/5.6. Most autofocus systems crap out at apertures dimmer than f/5.6. If you use a 2X converter on an f/4 lens, you've now got a maximum aperture of f/8, and autofocus will be dicey, if it functions at all. And the reduced exposure forces you to go to slower shutter speeds or higher ISOs or both.

• **WORTH THE PRICE?** Top-quality teleconverters are expensive. But you don't buy them for cheap extra reach. You buy them for reliable extra reach that's lighter and more compact than another lens. That's why nature and sports pros almost always have one or two in their bags. *—Dan Richards*

Shot with a Canon EOS 5D Mark II and 70–200mm f/2.8L IS II set to 200mm at f/5, –0.67 EV, ISO 400. Left, 1/640 sec; right, 1/800 sec.

DAN BRACAGLIA (2)

CASE IN POINT

WITH AND WITHOUT A TC: To confirm our opinions on teleconverter performance, we tried one of this month's test lenses—the Canon 70–200mm f/2.8L IS II—with and without Canon's matched Extender EF 1.4X III ($500, street). Setting the lens to 135mm, its SQF score for sharpness and contrast dropped insignificantly—still an Excellent rating. In fact, the 1.4X's 135mm (190mm, effective) score was noticeably better than the lens alone at 200mm. SQF did drop off to Good at 200mm with the converter (280mm effective), although this is typical of the dropoff we find in longer zooms that rack out to 270–300mm. Moreover, light falloff performance actually improved with the converter: There was no falloff, whereas the lens alone had to be stopped down to f/4 to eliminate vignetting at 135mm. Distortion also improved significantly, although with the teleconverter it flipped to pincushion from barrel. (For full test results, visit PopPhoto.com/teleconverter.)

190 MM

Size	5x7	8x10	11x14	16x20	20x24
4.0	96.7	95.7	93.3	88.3	82.2
5.6	97.2	96.3	94.3	90.5	86.1
8.0	97.5	96.7	94.9	91.7	88.1
11.0	97.2	96.3	94.3	90.6	86.3
16.0	96.7	95.7	93.4	88.9	83.5
22.0	96.0	94.7	91.8	85.8	78.4
32.0	95.2	93.8	90.1	82.0	71.4
45.0	95.0	93.5	89.7	80.7	69.1

280 MM

Size	5x7	8x10	11x14	16x20	20x24
4.0	91.9	87.4	73.9	55.7	44.3
5.6	92.4	88.4	76.4	59.2	47.8
8.0	94.1	91.1	82.5	69.5	59.7
11.0	95.4	93.3	87.4	77.7	69.5
16.0	95.3	93.1	86.9	76.8	68.0
22.0	94.7	92.1	84.9	73.1	62.9
32.0	93.4	90.2	80.7	65.4	52.9
45.0	91.4	86.9	73.4	53.0	38.9

KEY A+ A B+ B C+ C D F

"I learned that photography is a lot more about relating to people than pressing the shutter button."
— Me Ra Koh

© Me Ra Koh

ME RA KOH

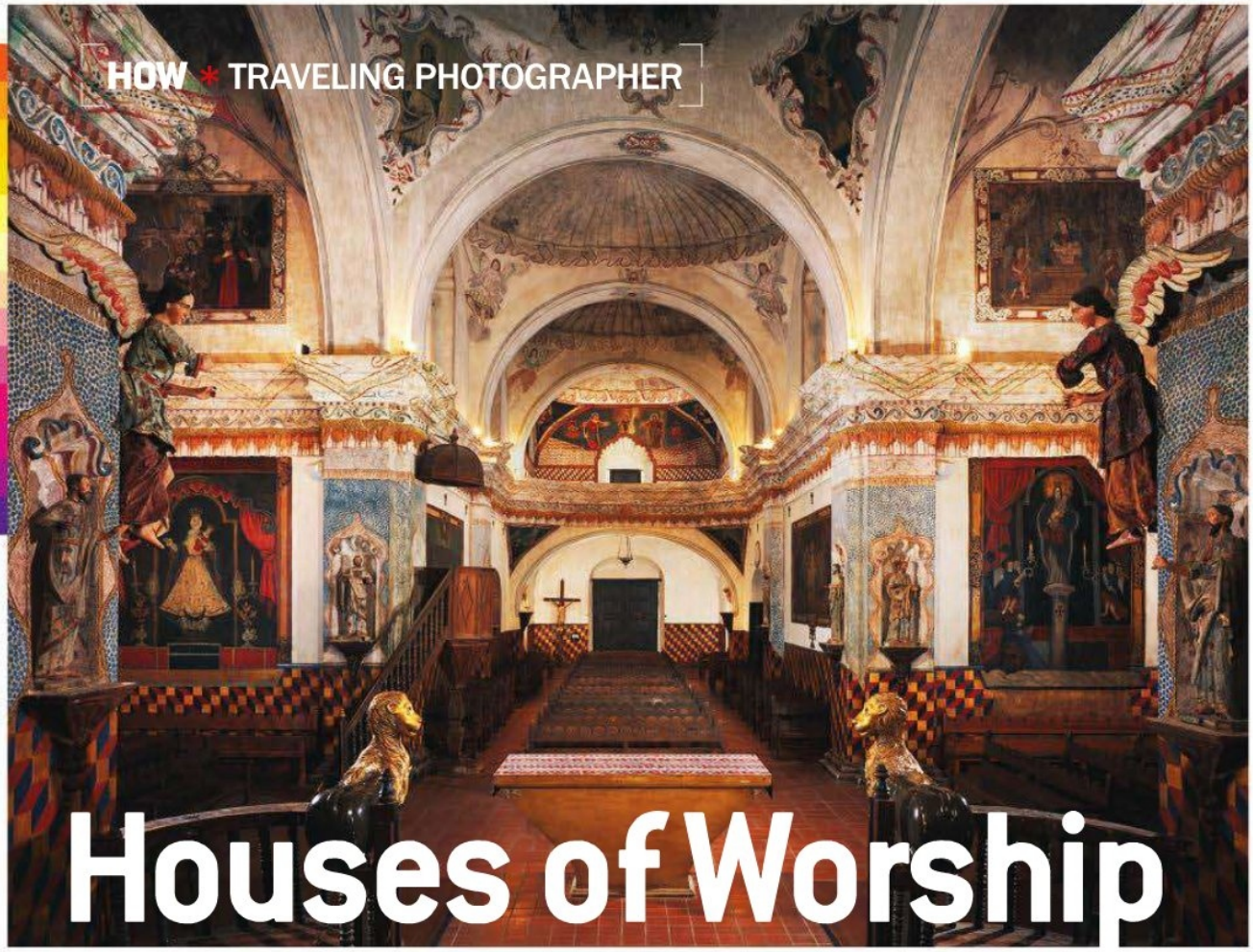
SHE LOVES CAMERAS, KIDS, AND PARENTS, AND SPENDS HER LIFE BRINGING THEM TOGETHER WITH SKILL AND COMPASSION

I started out as a writer," says Me Ra Koh, who authored a best-selling book. "I didn't find photography—it found me, and then it healed me. I was at a low point, and I decided to pick up a camera to preserve all those beautiful defining moments in the life of our two-year-old daughter. When friends saw my pictures, they started asking, 'Can you do our kids?' It was a godsend. Soon I put myself out there and became known as the go-to shooter for intimate family images and baby portraits. In the process, I learned that photography is a lot more about relating to people than pressing the shutter button."

The turning point came when she began shooting upscale weddings in the same charming and disarming manner. Now, three years later, her typical wedding package goes for $15,000 to $30,000. "But my heart was always in empowering women," she explains, "so I posted an offer inviting moms who wanted to learn how to use their cameras to a workshop in my home. In less than 24 hours it was fully booked. I distilled the essence of these workshops into a DVD, *Refuse To Say Cheese*, and presented a copy to Sony at a photographer's event. The result: an invitation to become a Sony Artisan, a Sony-produced DVD aimed at women and moms, and a new Amphoto book *Your Baby In Pictures—The New Parent's Guide To Photographing Your Baby's First Year*." Koh's photo recipes have been showcased on The *Oprah Winfrey Show* and she's a regular contributor on NBC's *The Nate Berkus Show*.

Me Ra Koh has always relied on Sony cameras and lenses. "The awesome A900 is perfect for high-end weddings and portraits," she exults. "It delivers such gorgeous color and exquisite image quality, post production is hardly needed. For TV and workshops, I absolutely adore the new SLT A55—it's so small, light and intuitive and it's a great teaching tool. My favorite lenses are the Carl Zeiss 24-70mm f/2.8 Vario-Sonnar and 85mm f/1.4 Planar, but I'm also a big fan of the economical Sony AT 50mm f/1.8 and recommend it to all my moms for its 'buttery backgrounds.' Both cameras have super-convenient control placement, great handling and Steady-Shot image stabilization for sharp handheld shots. The bottom line: Sony supports women photographers, and they build cameras that build confidence. That's why Sony works for me."

What is a Sony Artisan of Imagery? The Sony Artisan of Imagery program includes some of the most respected professional photographers worldwide. Each Artisan has a unique style and vision with their photography, but they all rely on one product, the Sony Alpha.



Houses of Worship

The historic Mission San Xavier del Bac, a Spanish Catholic mission outside of Tucson, was started in 1783, replacing an older mission destroyed by Apache Indians in 1770. Photo from *A Gift of Angels* by Edward McCain.

The ins and outs of photographing spiritual and prayerful places

I AM NOT the world's most religious person, but wherever I travel I make an extra effort to visit places of worship. What draws me to them is partly their history and sense of elaborate mystery, but also their sheer photogenic charm. From the adobe mission churches of the Southwest to the sweet white steeples of New England, these spiritual gathering places make a terrific travel subject.

Interiors, like that of Arizona's historic San Xavier del Bac mission church (above), overflow with detail and color, but are often dark and a total no-flash, and often no-tripod zone. Crank up your ISO and steady the camera on the back of a pew for sharp pictures. I've shot ancient icons at ISO 1600. Stained glass is good on bright days—just frame tightly and use matrix metering.

Church exteriors don't require permission or special access. The downside is that you must contend with cluttered surroundings, ugly power lines, street signs, and more. Work around this by finding an interesting foreground device to hide the muddle (framing a Vermont steeple with a maple limb, for instance) or clean it up later in software.

Shooting tall churches with a wide lens from close in causes a keystoning effect—the building appears to be falling backward. You can solve this with a tilt/shift lens, but a cheaper fix is to move back and use a normal lens (i.e., a 50mm on a full-frame DSLR) from a distance that lets you shoot without tipping your camera upward to capture the whole building. Then crop later.

Cathedrals are rife with ornamentation—use a long zoom to capture the wild faces of gargoyles.

—Jeff Wignall

WHERE TO GO A PICTURE AND A PRAYER

Start with a Google image search for "churches" or "missions" for the towns you're visiting, and scan Flickr groups. Here are a handful of great religious venues:

- **ARIZONA:** San Xavier del Bac Mission (the "White Dove of the Desert"). Historically important mission built between 1783 and 1797 by the Tohono O'odham tribe. (www.sanxaviermission.org)
- **CALIFORNIA:** Crystal Cathedral, 12141 Lewis Street, Garden Grove. Spectacular modern steel and glass cathedral. (www.crystalcathedral.org; for photo tips, ca.myphotoscout.com/2010/03/18/how-to-photograph-the-crystal-cathedral-in-la)
- **NEW HAMPSHIRE:** St. Paul's Episcopal Church, 113 Main Street, Lancaster. One of the most photographed churches in New England—simple and perfect. (stpaulslancaster.org/index.htm)
- **NEW MEXICO:** San Gregorio de Abo, near Mountainair. Mission ruins dating to the early 1600s. (newmexico.darkisle.com/abo/abo.html)
- **NEW YORK:** Cathedral of St. John the Divine, 1047 Amsterdam Avenue, New York City. Widely regarded as the largest cathedral in the world, a Gothic fantasia. (www.stjohndivine.org)
- **RHODE ISLAND:** Touro Synagogue, 85 Touro Street, Newport. The oldest synagogue in America. Public tours for a fee. (www.tourosynagogue.org)
- **TEXAS:** St. Mary's Catholic Church, High Hill. Two hours east of San Antonio. One of the "painted" churches of Fayette County. (www.texasescapes.com/CentralTexasTownsSouth/HighHillTexas/HighHillTexas.htm)

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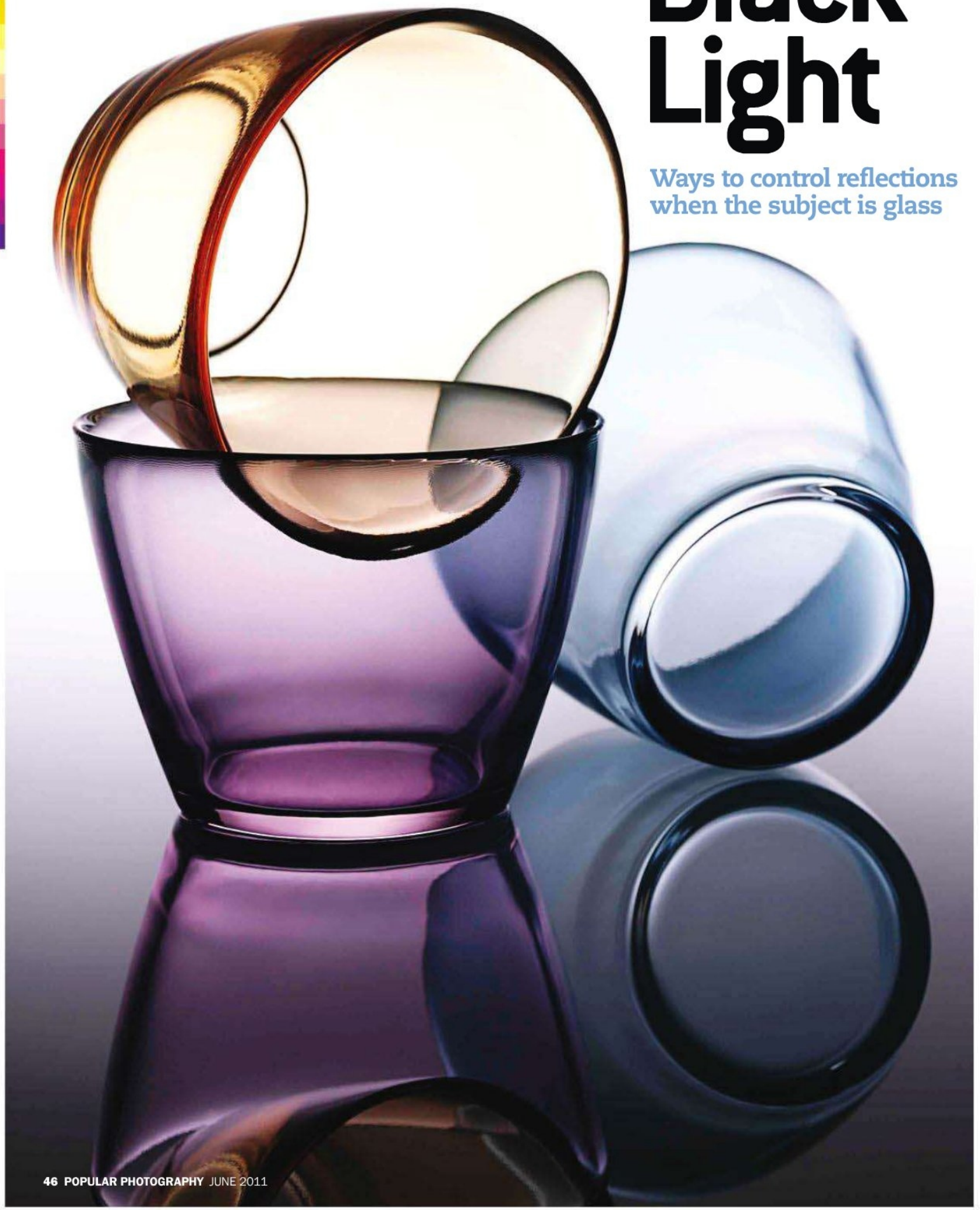
Black Light

Ways to control reflections when the subject is glass



USING SUBTRACTIVE LIGHTING

SIMPLE ▬▬▬▬▬▬▬▬▬▬ COMPLEX

AS WE'VE SAID before, if you can light glass, you can light anything. Tom Fritsch, a product and still-life specialist from Chicago, can light glass. He recently took on a personal project of lighting glassware in a way designed to enhance reflections in one part of the scene, while eliminating them in another. Not easy!

His ultimate goal? To emphasize the translucent, crystalline quality of his subjects by avoiding the bright white reflections so common in glass. For Fritsch, the problem with these reflections is that would have called attention to the surfaces of the glass, not to its transparency.

The lighting strategy he ultimately chose was based, in part, on *subtractive lighting*. Just as glass reflects white light, producing a white reflection mirroring the shape of the source, it can also reflect black. When used as lighting tools, these black reflections are known as subtractive fill.

Fritsch created it with two large (relative to his subjects) 10x18-inch black cards on each side of the glasses. Positioned close and at a 45-degree angle to them, the cards did more than block light as gobos or flags typically do. By subtracting light from his setup the cards also:

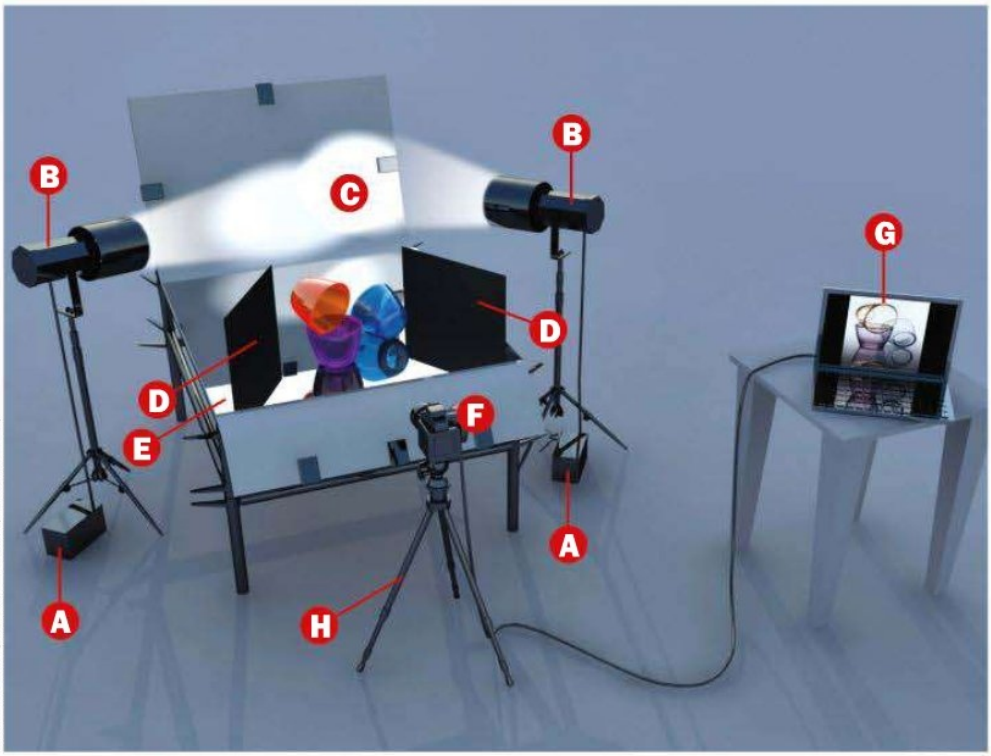
- Created the dark accents along the sides of the glasses that defined their shapes.
- Helped darken the glass floor in the foreground so that the reflected images of the glasses would stand out. And, more traditionally...
- Controlled the bright light that reflected off the background and prevented it from blowing out the glassware and desaturating its color.

Subtractive fill wasn't the only trick up Fritsch's sleeve. Instead of aiming his two strobes to create a circular white hot-spot immediately behind his subjects—as many of us would have done—he aimed his lights much more deliberately.

The left-hand strobe was aimed near the horizon line behind the glasses, and its function was to blow out the seam where the tabletop glass met the white background paper (see diagram). The opposite light was aimed above his subjects and off-axis to the right, which caused its output to fall off into shadow more quickly, helping to create the darker foreground that made the reflections down in this area stand out.

The overall result? An unusually pure and subtle rendering of a typically thorny subject.

—Peter Kolonia



KRIS HOLLAND/MAFIC STUDIOS (ILLUSTRATION)

For maximum control of reflections in the glassware he was photographing, Tom Fritsch set up two Speedotron 2403CX packs (A) and 102 Black Line strobe heads (B) to reflect off the white seamless background (C) and backlight his set. He fired them with Quantum Radio Slaves. For precise light pattern placement, he added 10-degree grid spots to the heads. He controlled reflected light and added subtractive fill with two black cards (D) placed beside the glassware. A sheet of glass under the subject (E) created the tabletop reflection. Fritsch shot with a Hasselblad 553 ELX (F), 54M Sinarback digital back, and Hasselblad 80mm f/2.8 Planar lens, all tethered to a 17-inch MacBook Pro (G). He supported the camera with a Gitzo Traveler tripod (H).

THE GEAR

Speedotron 102 Black Line head ($300, street)

Speedotron 2403CX power pack ($1,550, street)

Quantum Radio Slave 4i flash trigger kit ($355, street)

Fritsch "metered" his shot via the capture software in a tethered MacBook Pro. Tech data: 1/250 sec and f/16, ISO 40.

TOM FRITSCH, WWW.TOMFRITSCH.COM

DAVID YU, WWW.FACEBOOK.COM/DAVIDYUPHOTOGRAPHY (ORIGINAL)

Layer Tips

Five ways to make the most of Photoshop's killer function

A FANTASTIC photographer, devoted to Photoshop, once said to me, "Yeah, I love Photoshop, but I really don't use Layers."

I was agog. This is sort of like saying you love to cook but stay away from pots and pans.

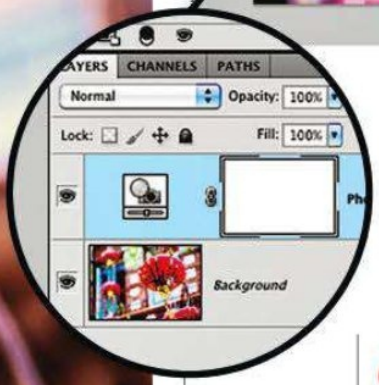
Layers aren't just for making composites and doing collages.

Use layers for more control; they helped improve this shot.

They are important tools that afford you very fine control over the way you edit your images.

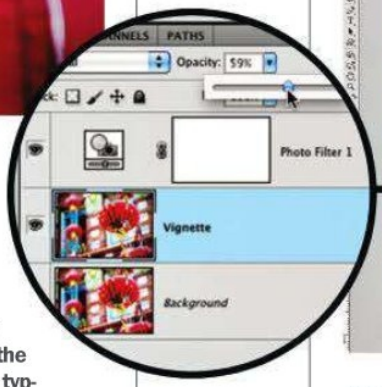
Using Layers, you can control the amount of every change you make, double up on some edits and remove others, and carefully address small areas of your image—all while leaving your original image intact. And you can do far more with Layers than just duplicate them and delete them.

Here are five tips for working with them in a more nuanced way. Some are great for users new to the tool, and a few are more sophisticated. ***—Debbie Grossman***



Tip 1 USE ADJUSTMENT LAYERS

These sit on top of normal layers and affect all the layers below. They don't modify your pixels directly, so you can always go back and readjust, and you can add lots of them with only the barest increase in file size. Each comes with a handy premade mask. **To add one to your image, go to Layer > New Adjustment Layer and choose the type you want.** You can adjust Levels, Curves, and more, or add a Photo Filter, as I did here.



For a faster adjustment, mouse over the word "Opacity" and click and drag left or right.

Tip 2 VARY YOUR OPACITY

When you make a major change, it's good to do so on a duplicate layer. Then, if you need to, you can reduce the effect by decreasing a layer's opacity. This works on Adjustment Layers, too. Here, I duplicated the Background Layer, renamed it Vignette, and added a slight vignette. But it was still too much. **To turn it down, click on the small pulldown menu next to Opacity, and move the slider until you like the way it looks.**

F.Y.I.

LAYER KEYBOARD SHORTCUTS If you make a selection on any layer, you can quickly copy and paste the contents of the selection to a new layer by typing Ctrl (Command on a Mac) + J. To merge the selected layer with the one below, type Ctrl + E. If you want to merge a bunch, Shift + click on them all and then type Ctrl + E. To make a selection around all the contents of a layer, hold down Ctrl and click on the layer thumbnail.

Tip 3

LINK YOUR LAYERS

If you want an Adjustment Layer to affect just the layer right below it, you can link them. **Hold down Alt (Option on a Mac) and click on the line between the two layers you want to link.** You'll see an icon with two overlapping circles—once they're linked, the upper layer will show a bent arrow pointing to the one it's linked to. This Hue/Saturation Adjustment Layer now alters only the color of the lantern floating on the layer below, not the whole image.

To unlink the layers, follow the same procedure again.

Tip 4

USE SMART FILTERS

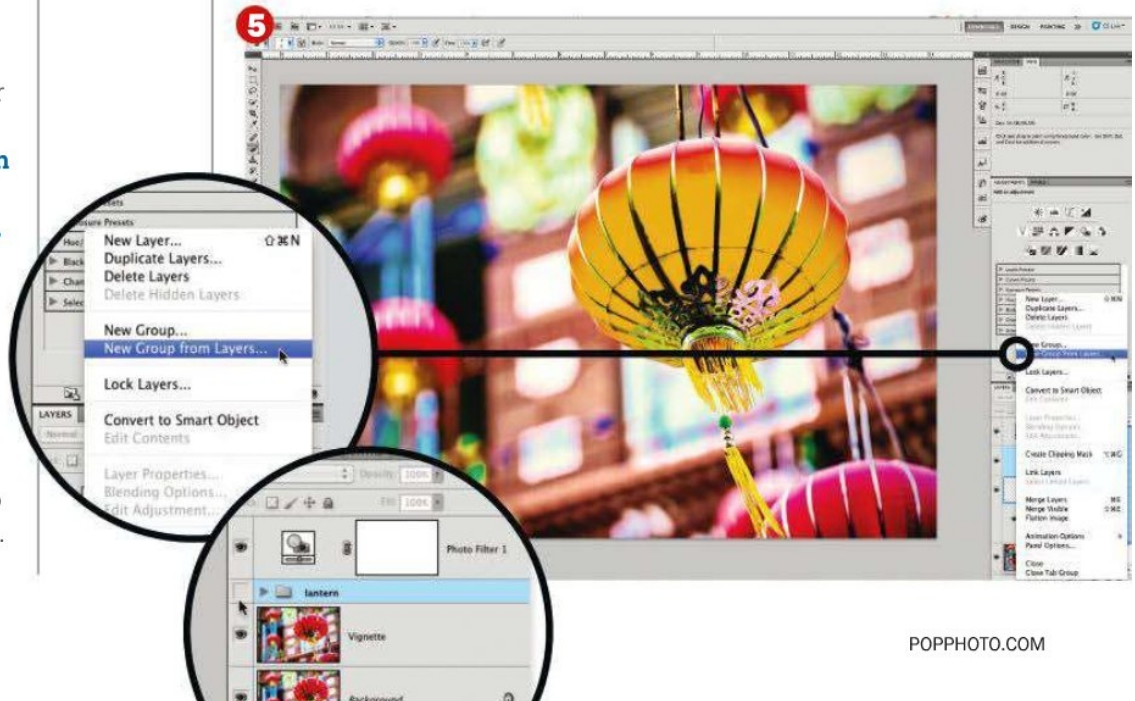
Filters normally can't be revisited and reworked. But if you turn a layer into a Smart Object, you can use a Smart Filter on it and readjust it. **With your layer selected, go to Layer > Smart Object > Convert to Smart Objects.** An icon will appear in the lower right corner of the layer thumbnail. Add a filter, such as Smart Sharpen, as usual. After you click OK, a Smart Filters layer will appear under the layer you worked on. Double-click it at any time to readjust your filter.

Smart Filters are found in versions CS3 and newer.

Tip 5

ORGANIZE LAYERS

When you have a lot of layers, your Layers Panel can get unwieldy, so organize it with folders: **Hold down the Shift key and click on the layers you want to keep together.** Then click the flyout menu in the top-right corner of the panel, and choose New Group from Layers. You'll be prompted to name it; when you click OK, the layers will be in their own folder. You can nest folders inside one another. Turn a folder on and off to show and hide all the adjustments. You can even add a mask to it.



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New Classic

Finding fresh perspectives on popular landmarks

KEN COLWELL, WWW.KCOLWELL.COM

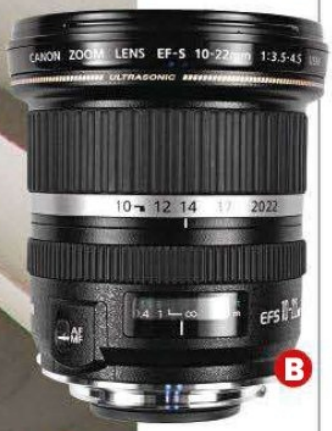
SOMETIMES THE most recognizable buildings and landmarks are the hardest to photograph. So discovered pro shooter Ken Colwell, 39, of Ada, OH, on a recent business trip to Washington D.C. Its Lincoln Memorial is an architectural gem and among Colwell's favorite sites.

Shot handheld at 1/3200 sec and f/3.5, ISO 160; wide-angle zoom set to 10mm.

What made it hard to shoot? The first obstacle was dealing with his fellow tourists. Crowds can make it hard to get even snapshots at venues this popular.

Second, it can be impossible to take a picture of a famous structure without producing a cliché. "I shot many photos inside the Memorial, but couldn't come up with anything new or different," Colwell recalls. "In a moment of frustration, I stepped outside to find this beautiful blue sky, these brilliant white columns, and a photo I like."

Colwell has some workarounds for "overexposed" sites:



For this luminous view of a DC landmark, Ken Colwell used an earlier version of the Canon EOS 60D (A) (the 30D), a Canon 10–22mm f/3.5–4.5 EF-S zoom (B), and he edited in Adobe Photoshop CS5 (C).

Step 1

Take the right gear. "You will almost certainly need an ultrawide-angle lens to take in larger buildings and landmarks, without tipping your camera up and distorting their lines," Colwell says.

Step 2

Time your visit. Avoid tourists by shooting in the off-season, during the work week, or early in the day. "When I travel to the West Coast, I keep my body on East Coast time," explains Colwell. "It helps me get up before dawn, avoid the crowds, and get pictures with the warm light and long shadows of sunrise and early morning."

Step 3

Use Google Earth to learn the disposition of buildings and landmarks relative to the sun's path. You probably don't want to arrive at midday, and Google Earth can often show you whether early or late in the day will provide the best light for popular destinations. Its Sun control also indicates how bright the location will be for a given hour and day of the year. Colwell's photo works, in part, because it was taken in the early morning when the sun was low and indirectly illuminating the portico's coffered ceiling and the backs of the columns.

Final Step

Compose creatively. Show viewers something they haven't seen before by shooting from unusual perspectives. Get very low, very high, rotate the camera or shoot from close in using a fisheye lens.

■ **Study images** of your famous subject on Flickr—sort by "Interestingness"—and use the least-clichéd as starting points for envisioning your own angle.

■ **Take only** a few pictures of the entire building or landmark. Spend more time zooming in on less-familiar, yet fascinating, detail.

■ **Absorb the** unique character of a place and shoot until you've captured it. "As I read Lincoln's stirring words that lined the interior walls, it inspired me to keep shooting until my photos reflected how the Memorial made me feel," says Colwell. *—Peter Kolonia*

Text and photos by Jon Cornforth

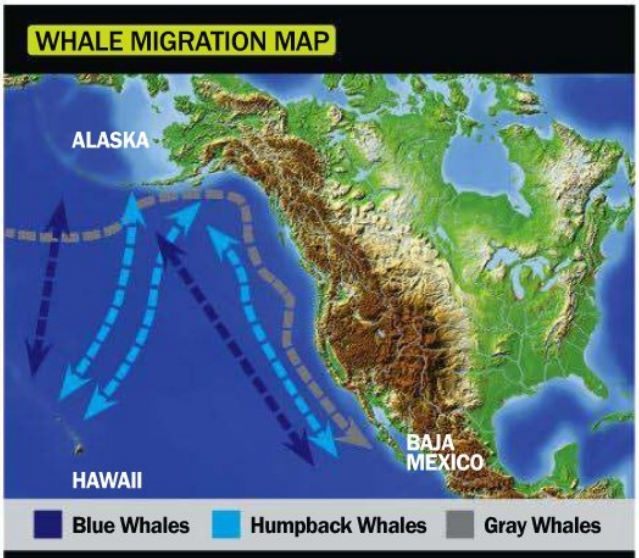
HUNT FOR WHALES

Imagine a 50-foot-long, 40-ton animal erupting out of the water and into midair, then hitting the surface with a mighty splash. Now imagine your finger was on the shutter button for a 7-fps burst. Here's how to make this dream come true.

HUMPBACK WHALE, FREDERICK SOUND, AK
Shot with a 70–200mm f/2.8L Canon EF IS lens wide open for a shutter speed of 1/1250 sec at ISO 100 (with +0.33 EV exposure comp) on a Canon EOS 7D.

PWWWWFFFFFFFFFF!
You never forget the first time you hear a whale explosively exhale through its blowhole and immediately draw in a breath of fresh air. Even more awe-inspiring is witnessing one of these behemoths momentarily defying gravity, propelling itself completely out of the water in a full-body breach. Words can't do justice for these gentle giants—but photography allows you to portray them in great detail. If you have never photographed a whale, now is the time to begin planning your next photography trip around whale watching.

During the last century, whales were hunted nearly to extinction,



Food and sex determine the migratory patterns of whales: to cooler northern waters in the summer for feeding, and to warmer southern waters in winter for mating and calving.

ARID OCEAN/FOTOLIA.COM

but fortunately they came under protection before it was too late. While some cetaceans are still critically endangered, many of the most iconic species, notably humpback and gray whales, have recovered from their historic lows and now have healthy populations. Almost all of the former whale-hunting nations now have thriving whale-tourism industries. This makes it easy for an aspiring whale photographer to get out on the water—but getting a picture of one is never guaranteed.

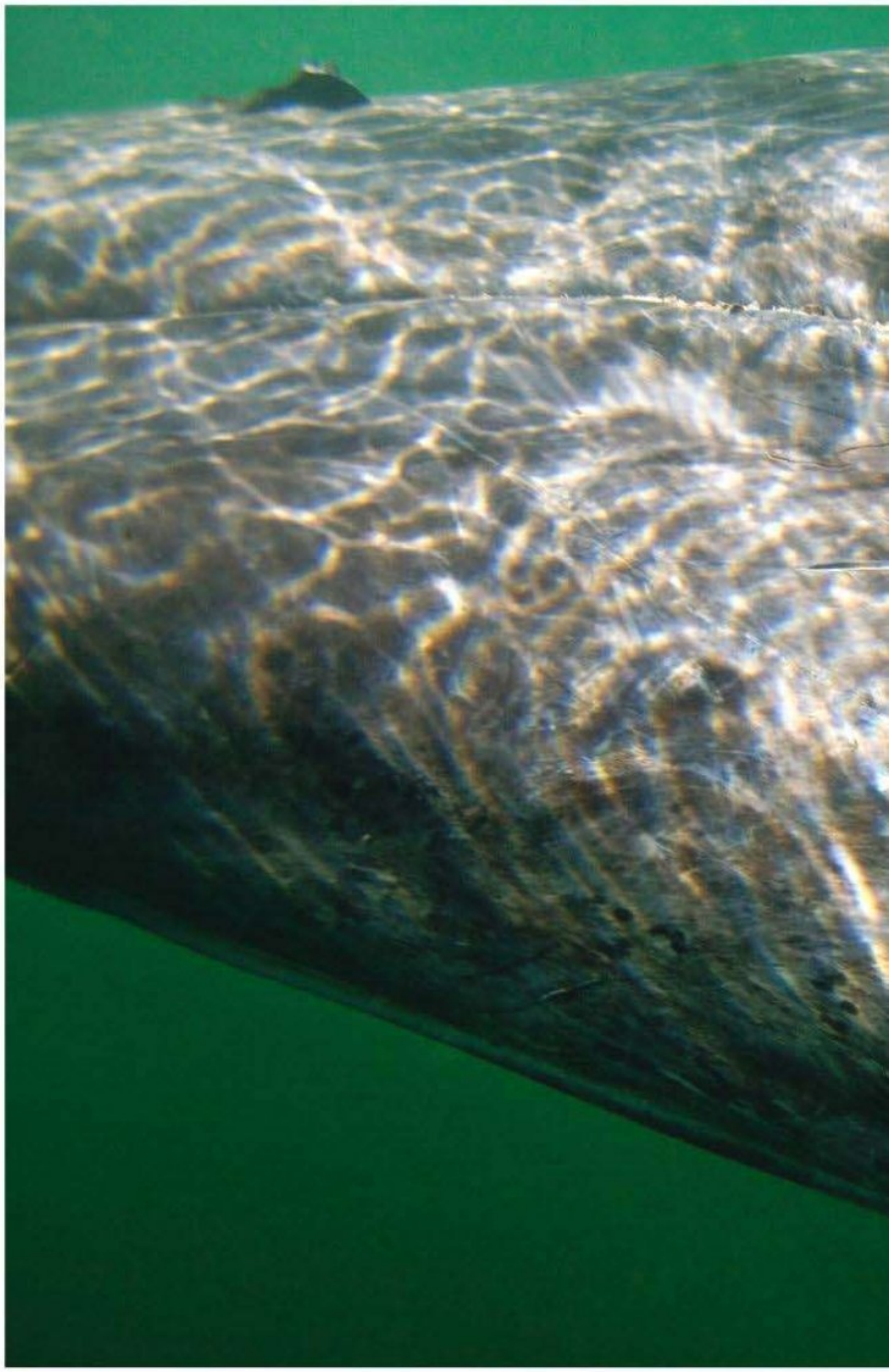
Putting Your Gear in Order

Any lens in the 100–400mm range that you can handhold easily can be used for photographing whales. The single most practical lens for capturing above-water whale behaviors is a 70–200mm f/2.8 (or equivalent), with image stabilization in the lens or camera body.

Make sure that you use a neck strap to prevent the camera from dropping overboard. If your camera body has a sensor that's smaller than full-frame, its crop factor extends the reach of your shorter focal-length lenses. A teleconverter will also boost your lens reach. But keep in mind that no amount of focal length will ever substitute for a close photo encounter with a whale.

You will need a camera with a high burst rate—6 to 7 frames per sec at a minimum. Whales reveal themselves only briefly above the surface, so you will need to maximize your opportunities when they happen. Always shoot in continuous (burst) drive mode.

You will also need to be confident in your camera's autofocus system. Most DSLRs today let you compensate for a lens's inability to focus perfectly on a given camera through a feature called AF Microadjustment or AF Fine Tune. Datacolor's SpyderLensCal can help you set this adjustment properly. Do so before you are out



BUBBLE-NET FEEDING, CHATHAM STRAIT, AK **Humpbacks cooperate to scare herring to the surface with bubbles, then feast heartily. Canon EOS 7D with 70–200mm f/2.8L Canon EF IS lens; 1/5000 sec at f/2.8, ISO 200.**

on the water; consult your camera manual for the procedure.

Shoot on continuous AF and set the camera to use the center AF point alone. There will be no time to change focus points yourself—don't chance the camera choosing the wrong point. If you think that you can anticipate the direction a whale is moving (almost impossible when it's underwater), move the focus point to the bottom or slightly off-center so that the animal moves into the frame. This is best done when photographing tails or other visible surface behaviors.

Proper exposures are difficult but not impossible. As the sky and the ocean's surface are often much brighter than the whale, plan to overexpose your image by +0.5 to +1 EV. If, though, a whale surfaces against a dark island background, you'll need slight underexposure. You'll never be able to meter the scene once the action happens, so test the exposure before the whale surfaces and leave your camera set to that setting in manual mode. The biggest challenge happens when a whale comes up on one side of the boat, and you need a totally different exposure there than on the other side. Again, use manual exposure for the more likely image, and use aperture- or shutter-priority auto with exposure compensation set for the other side of the boat. Keep your finger on the mode dial so that you can change it quickly.

GRAY WHALE LAGUNA SAN IGNACIO, BAJA, MEXICO Shot with a Canon EOS 5D and 20mm f/2.8 Canon EF lens in an Ikelite housing; 1/200 sec at f/5.6, ISO 100.

One of the most exciting ways to photograph whales and dolphins is underwater. Most countries have restrictions about getting in the water with them, but

CONTINUES ON PAGE 124

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HOW-TO THINK LIKE A PHOTOGRAPHER

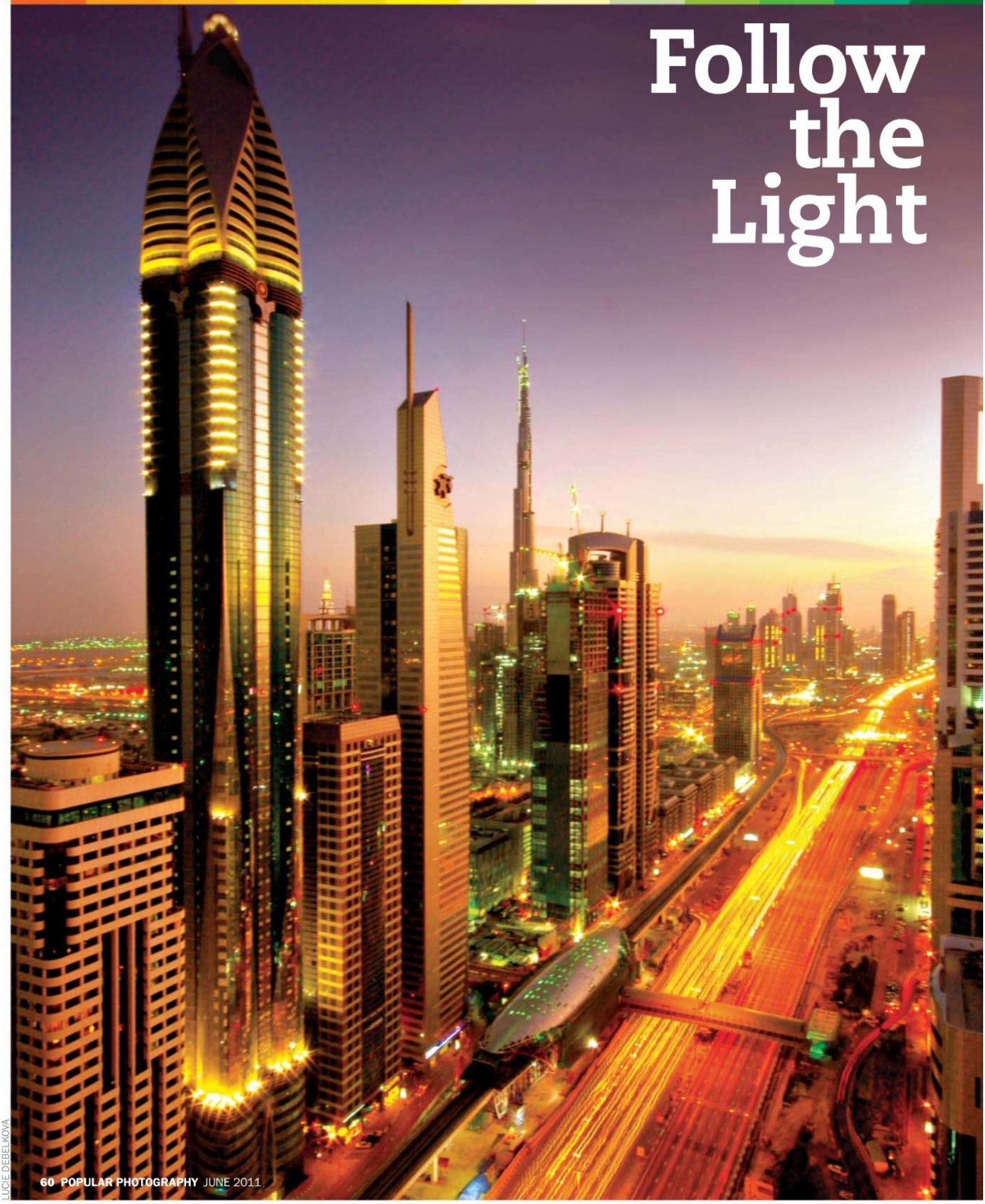
By Peter Kolonia

You *can* score with every subject! Grab the right tools from your photographic tool kit—focus, exposure, focal length, lighting, vantage point, and others—and, by working the scene, you'll push the odds for success in your favor. Think like a photographer, in other words, and great images will follow.

The tools Ben Heine used for this poppy: a wild vantage point, ultra-wide macro lens, plenty of depth of field, and fill flash.

BEN HEINE, WWW.BENHEINE.COM

Follow the Light



LUCIE DEBELKOVA

THE MAGIC OF MIXED LIGHT

Light has direction, harshness or softness. It can be blindingly bright or dismally dim. And as Lucie Debelkova saw in Dubai last year, it also has color. By contrasting the warm tones of the artificial light along Sheikh Sayed Road with the cool tones of twilight growing overhead, she was able to use light and its color to electric effect. If you find that a scene isn't working for you, try waiting for the light to improve.

MIXING LIGHT

TO GET THE MOST FROM SCENES WHERE MAN-MADE AND NATURAL LIGHT MEET...

- **Set the right white balance.** It should correspond to the color temperature of the light falling on your main subject. For Debelkova's scene at left, setting an incandescent white balance produced more consistently electric blues in the background than Auto White Balance would have.
- **Try evaluative metering.** Then bracket exposure in shutter priority for five or six shots. In some scenes, almost every picture could be a keeper.
- **Continue to shoot.** In the hour before full darkness, lighting ratios between foreground and background will change almost by the minute. Keep going.

HOW-TO

USE SIDELIGHT TO BRING OUT TEXTURE
When texture is a visually important element of your subject, consider sidelighting it. This can bring out folds in clothing and drapery, the weave of fabric, and detail in hair.

TRY SOFT FRONT-LIGHT FOR MAXIMUM DETAIL
Because of its lack of shadows, frontlighting will convey the most information and detail about a subject.

WORK WITH BACKLIGHT TO MASK DETAIL
Backlighting can create flare around a subject, which has the effect of concealing shape and detail—perfect for some portraits.

SEEING THE LIGHT

MANUEL ALFONSO ARPA

GO FOR GLOW

Ambient light can have its own beauty

DAYLIGHT WITH a wonderful glowing quality can trump the objects in a scene and become a picture's true subject. Its presence can elevate a location to more than the sum of its physical parts. The best thing? Window light is one of the most beautiful ambient light sources and is available everywhere.

For other forms of great ambient light try shooting....

- **Early or late in the day** when shadows are long and the strafing light brings out texture, such as in the grass of Manuel Alfonso Arpa's shot (left) made near his home in Seville, Spain.
- **Before and after storms.** Look for light shows created by cloudscapes before and crystalline air (and light) afterwards.
- **When atmospheric moisture is present** in the form of mist, fog, drizzle, or snow flurries. The lower contrast can give your landscapes an arresting, otherworldly look.
- **At night under a full moon.** The dreamy light and blurred subject movement caused by long exposures can together make for haunting images.

FLASH TIPS

CREATING YOUR OWN

Getting the most from a shoe-mount flash

MOST OF US own cameras that accept shoe-mount flash units. This feature designed to provide a much needed lighting boost can, however, create problems. On-camera flash can often produce harsh, flat, and blown-out "snapshot" lighting. To avoid it, get the most from a shoe-mount flash and try the following techniques:

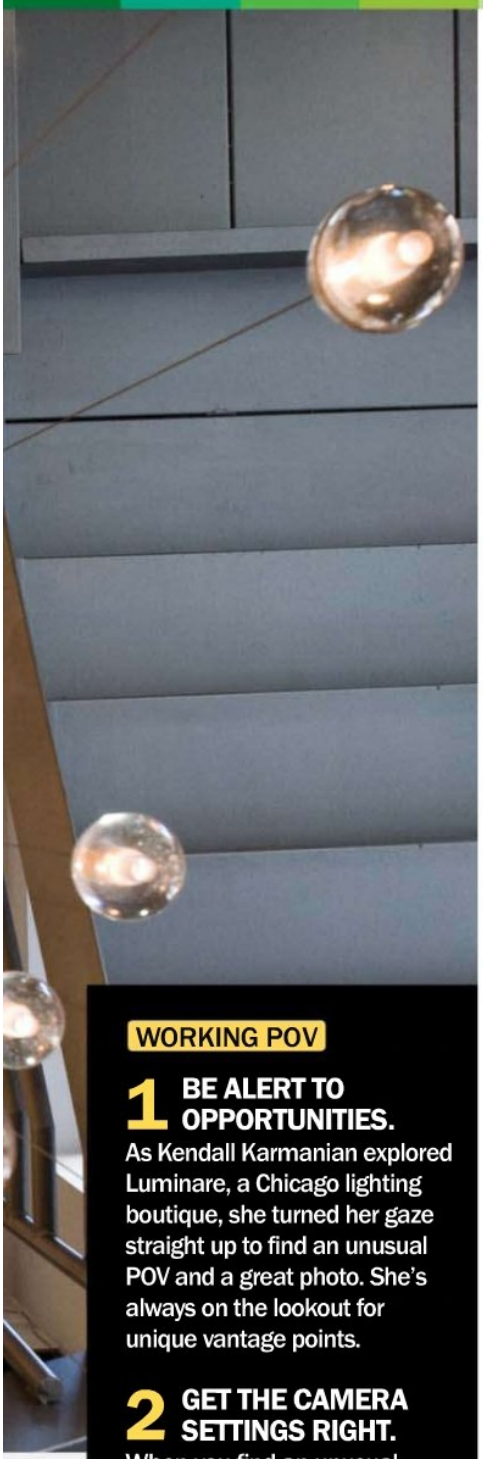
- **Bounce flash output off the ceiling or nearby walls.** Whenever possible, avoid aiming an on-camera flash directly at your subject.
- **Take advantage of a wireless shoe-mount flash.** There are many today. They let you lift your flash off the camera to produce off-axis, directional lighting.
- **Finesse exposure.** Start by experimenting in the cameras' manual exposure mode. Changing the aperture will adjust the flash output on the foreground subject. Changing shutter speed will let more or less background show in the shot.
- **Soften flash output.** Use a shoe-mount flash diffuser like those from Gary Fong and LumiQuest.

KENDALLKARMANIAN.COM

New Perspectives

FIND A NOVEL VANTAGE POINT

No matter how mundane your subject, if you can show viewers a new way of seeing and understanding it, you've succeeded. Capture it from an unusual vantage point by placing your camera high, low, or in close, or by shooting straight down or straight up (as in this photo). The basic concept is to present your subject from any point of view *except* your usual spot: straight on and from your standing eye level.



WORKING POV

1 BE ALERT TO OPPORTUNITIES.
As Kendall Karmanian explored Luminare, a Chicago lighting boutique, she turned her gaze straight up to find an unusual POV and a great photo. She's always on the lookout for unique vantage points.

2 GET THE CAMERA SETTINGS RIGHT.
When you find an unusual vantage point, set the camera to exploit it. "I placed my focus very carefully here," says Karmanian. "When I focused on the foreground bulbs or the distant ceiling, the photos were very different."

3 KEEP LOOKING.
Every subject can be captured from an unusual vantage point, says Karmanian, if you look hard enough.

HOW-TO

USE A SWIVELING LCD SCREEN
DSLRs with articulated LCD screens are great for low- or high-angle shots. Another option? Off-camera accessory finders such as the Zigview or Hähnel Inspire.

LOOK OUT FOR STAIRS
A flight of stairs can give you an instant high vantage point. Seated on the lowest step gives you an easy low vantage point for portraits.

PROTECT YOURSELF
Low-angle shooting can be murder on your knees and clothing. Have a foam kneeling pad on hand, such as those sold at gardening centers.

GETTING HIGH

A LIFTING EXPERIENCE

Put your DSLR on a monopod and raise it up

You don't need a cherry picker to get your camera high. Thread it onto a monopod and hoist away—a great way to get above the heads in a crowd.

- **Fire the shutter** using your camera's 10-sec self-timer.
- **Switch to manual focus** and prefocus before lifting the camera.
- **Shoot in aperture-priority** and set a small aperture for maximum depth of field.
- **Use an ultrawide lens** and fine-tune the composition later by cropping in software.
- **Tilt the camera** slightly downward on the monopod's head to include more foreground.
- **Try this with a lightweight tripod** if you don't own a monopod.

FOR PORTRAITS

THE EYES HAVE IT

Shoot at eye level with your subject

WHILE UNUSUAL vantage points can make a shot, if your subject has eyes—be it a pet, child, or hippopotamus—the best point of view is often at eye level, at least to start. If you can get eye contact, all the better.

But how do you get eye-to-eye with a 1,700-pound hippo? Not by jumping into the water with it. Gerardo Soria of Valencia, Spain was able to take this shot at his city's famous Bioparc Zoo. Its hippo enclosure was cleverly designed to allow him to see the animals both above and below the waterline. Moreover, the waterline is at a height to allow adult visitors to get eye to eye with the hippos.

"I placed my camera, a Canon EOS 40D with a 70–300mm f/4-5.6 IS zoom, against the hippo pond's glass wall," Soria says.

With the lens less than half an inch above the water level, he had the perfect vantage point: If the beast would look in his direction. "I stood there for almost 30 minutes before he made eye contact," says this long-suffering photographer.

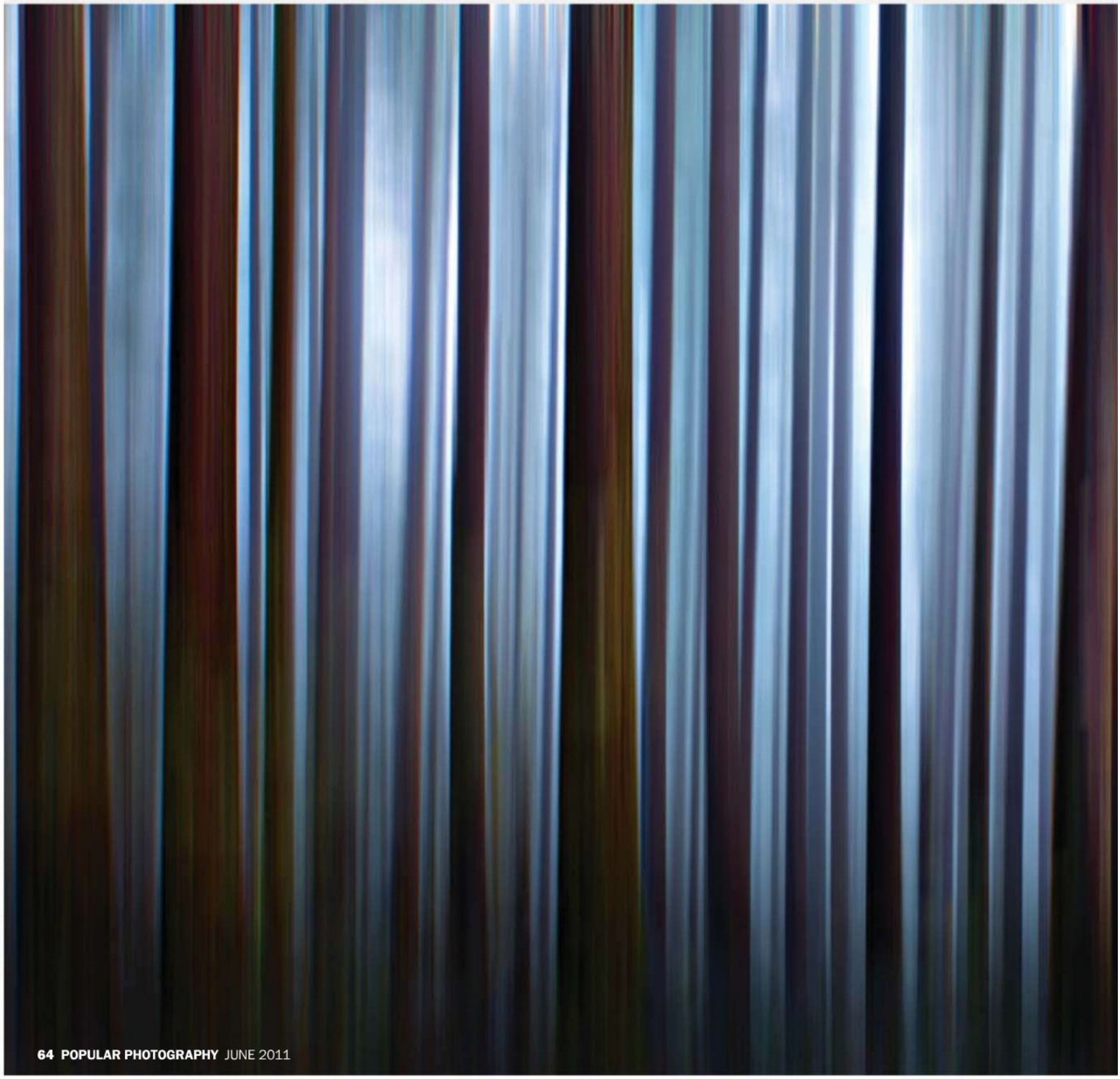
Patience helped here—the vantage point makes the shot.

GERARDO SORIA

The Blur Factor

BOTH SHARPNESS AND BLUR CAN WORK

"Is the picture sharp?" "How sharp is that lens?" Photographers ask these questions all the time. But we shouldn't forget the flip side to sharpness: softness. Some subjects and some visual moods are best served by lack of sharpness either across the entire image or selectively applied. If a sharp rendering of your subject isn't working, consider softening the whole or its parts.



DARREN WHITE, WWW.DARRENWHITEPHOTOGRAPHY.COM

ADDING BLUR

1 MOVE THE CAMERA. An easy way to produce softness, moving the camera at slow shutter speeds is most effective with scenes of contrasting tonaliites. It worked for Darren White with the trees at left. "It's always best to have the camera moving before you open the shutter," he says, "to avoid having the scene unevenly blurred."

2 MOVE THE SUBJECT. During longer shutter speeds (1/25 sec or slower), shooting a moving person or object will produce motion blur. This is a great way to charge an image with an implied kinetic energy.

3 MOVE BOTH. Panning the camera in the opposite direction of subject movement usually produces a pure abstraction. Panning it in sync with a subject creates a sharp subject and pleasingly blurred background.

4 CHANGE THE ZOOM SETTING. Zooming during exposure can produce a fascinating kaleidoscopic effect that works especially well with colorful, high-contrast scenes.

5 SOFT-FOCUS FILTERS. Analog (glass) or digital, filters let you control how much and where in the image softening is applied.

HOW-TO

USE WIDER FOCAL LENGTHS
This nets maximum sharpness. Even expensive pro-grade telezooms get softer at their longer focal lengths.

CHECK DEPTH-OF-FIELD PREVIEW
Ensure that the most important parts of your scene are sharp, and unimportant elements defocused.

HANDLE THE CAMERA DELIBERATELY
Cradle it in your hands—don't clutch it—and squeeze the shutter release slowly when firing off a shot. Even better: Fire it with a remote release or the camera's self-timer.

ANTHONY GELOT, AG PHOTOGRAPHE ON FACEBOOK

MAKE IT SHARP

Techniques to use when sharpness counts

WHEN ANTHONY GELOT saw the sculpture of Eurydice in the rotunda of the Passage Colbert in Paris, he wanted both this and the roof above to be sharp. Shooting with a Nikon D700, these techniques helped him ensure front-to-back sharpness:

- **Use the right lens.** Gelot used Nikon's 16mm f/f2.8 fisheye, which, like any ultrawide, gave the image a greater appearance of sharpness than a longer focal length would have.
- **Steady the camera.** Gelot mounted his on a tripod.
- **Set a high ISO.** Boosting your sensor's sensitivity to the highest setting you're comfortable with will provide more flexibility when it comes to setting the right exposure.
- **Expose for sharpness.** Use an aperture small enough for adequate depth of field (f/14 here) and a shutter speed fast enough to keep camera motion under control, if handholding.
- **Sharpen in software.** Almost all digital images require sharpening in an image editor. Gelot used Oloneo PhotoEngine, a popular RAW/HDR editor.

HAVE IT BOTH WAYS

SELECTIVE FOCUS

When you need both sharp and soft

OFTEN A SCENE works best with a sharp subject and unsharp fore- and background. Called selective focus, the technique throws attention onto your subject, blurs picture elements that are unimportant or messy, and can add a feeling of depth to your photo.

Selective focus usually works best with fast lenses (f/2.8 or faster) used at or near maximum aperture. When you must use a smaller aperture with its greater depth of field, you can sometimes get the effect of selective focus by manually focusing far in front or behind the subject, keeping it within the depth of field, but rendering much of the fore- or background soft.

Tones Tell a Tale

TRY HIGH-KEY, LOW-KEY, OR B&W

Catalogue photographers are paid to reproduce literal representations of their subjects—sharp, with exact color and texture renderings. Happily, most of us don't shoot for Brooks Brothers. We use our cameras not as mirrors but as expressive tools that reflect, in part, our passions. If your photos present a subject with a literal dullness, drastically altering the images' tonality may hit closer to home.

NILGÜN KARA

HIGH KEY

1 USE THE HIGH-KEY APPROACH FOR SELECT SUBJECTS.
Images with primarily white and light gray tones lend a simplicity, innocence, and etherial purity to a subject. The technique works well for romanticized portraits, such as in Nilgün Kara's beauty shot here, and for portraits of children. Wintery or foggy landscapes and floral studies work, too.

2 DON'T RELY ON OVEREXPOSURE TO ACHIEVE THE EFFECT.
It can blow out important line and detail that define subject shape. Instead, make sure both the subject and background are made up mostly of white, light gray or pastel hues.

3 HAVE PLENTY OF REFLECTORS ON HAND.
Use multiple fill cards and reflectors to bounce light into all shadowed areas of your subject.

4 USE HIGH KEY TO MASK PROBLEM SKIN IN PORTRAITS. Combining high key with backlighting, soft focus, and slight overexposure can be especially effective.

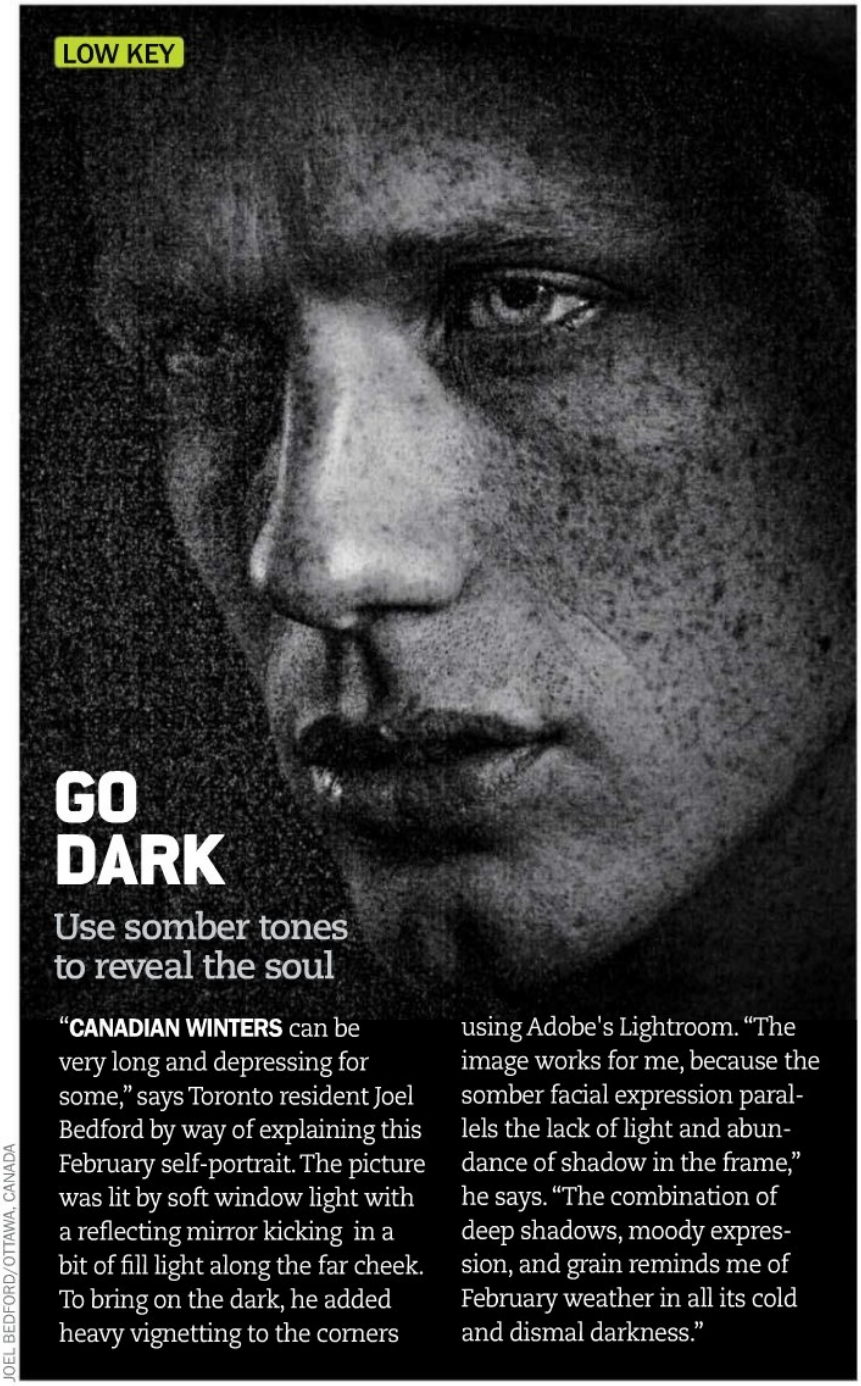
HOW-TO

SELECT LOW-KEY SUBJECTS WITH CARE
Low-key lighting works best with somber, mysterious, or even dangerous subjects. Try its bad-boy allure for product shots.

DIAL IT WAY DOWN
If your low-key subject isn't working, you probably haven't reproduced it dark enough. When you dial down tonality until you think it's too dark, you're probably getting close.

NO-KEY WORKS, TOO Tonality with low contrast and all midtones underscores antique qualities in a subject.

LOW KEY



JOEL BEDFORD/OTTAWA, CANADA

GO DARK

Use somber tones to reveal the soul

"CANADIAN WINTERS can be very long and depressing for some," says Toronto resident Joel Bedford by way of explaining this February self-portrait. The picture was lit by soft window light with a reflecting mirror kicking in a bit of fill light along the far cheek. To bring on the dark, he added heavy vignetting to the corners using Adobe's Lightroom. "The image works for me, because the somber facial expression parallels the lack of light and abundance of shadow in the frame," he says. "The combination of deep shadows, moody expression, and grain reminds me of February weather in all its cold and dismal darkness."

DUCKING COLOR

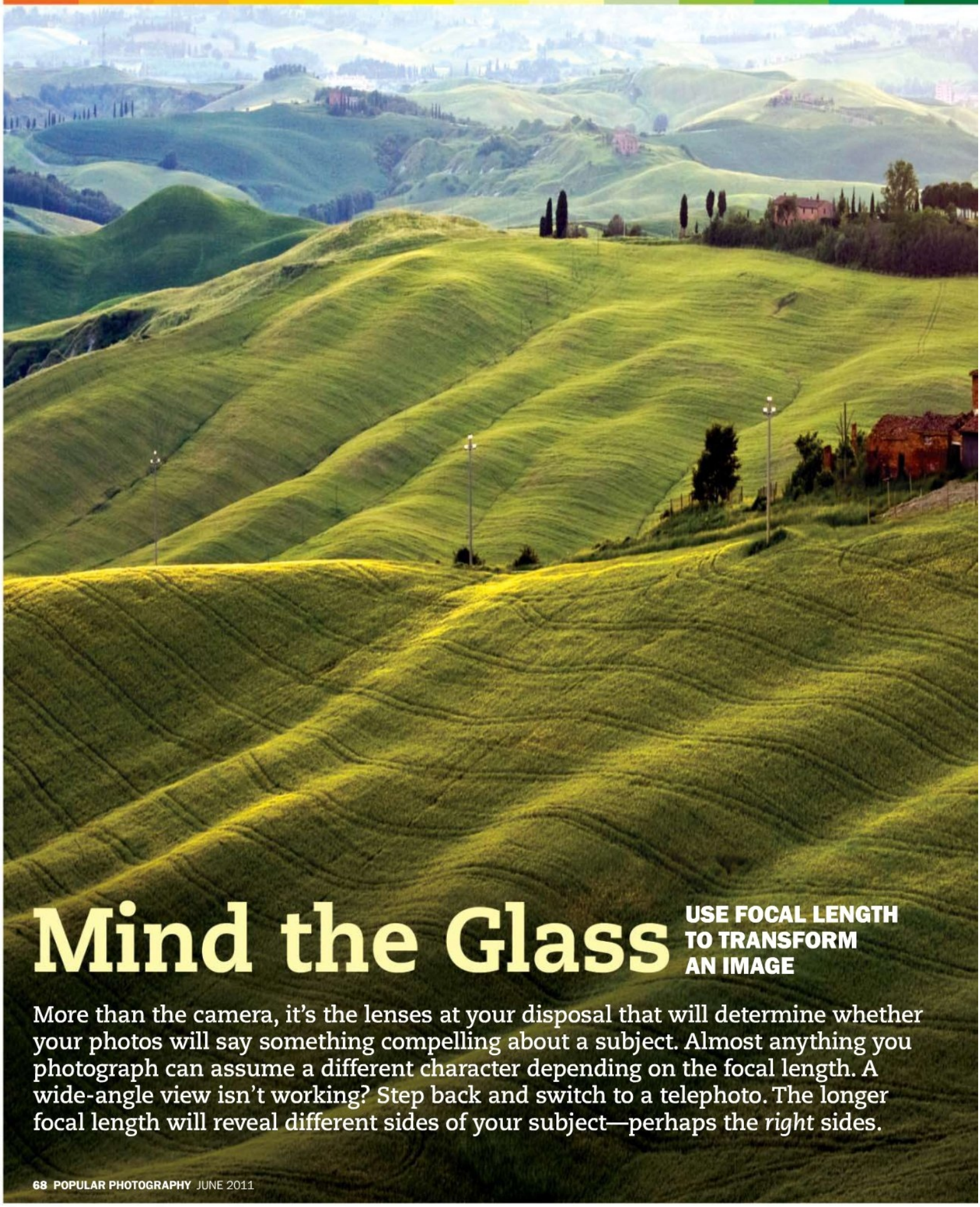
CONSIDER MONOCHROME

Drain a scene of color to bring out character

REPRODUCING A SCENE in monochrome can transform it in unexpected and often satisfying ways. It tends to lift the subject out of a specific time and place, distilling and abstracting its visual qualities.

Monochrome can be black-and-white, sepia-toned, a blue cyanotype or other effect. Each will have a different impact.

Another option: partially desaturing a scene in software to create a cool antique quality.



Mind the Glass

USE FOCAL LENGTH TO TRANSFORM AN IMAGE

More than the camera, it's the lenses at your disposal that will determine whether your photos will say something compelling about a subject. Almost anything you photograph can assume a different character depending on the focal length. A wide-angle view isn't working? Step back and switch to a telephoto. The longer focal length will reveal different sides of your subject—perhaps the *right* sides.

GIACOMO PULCINELLI

TELE LANDSCAPE

1 ZOOM IN FOR DETAIL. When Giacomo Pulcinelli saw this breathtaking view of the Tuscan hills outside Sienna, he could have chosen an ultrawide focal length to take it all in. Instead, he shot at the equivalent of 120mm. The tele setting compressed space, highlighting the rolling quality of the hills. It also gave him a strong focal point, the ancient farm house, and a stunning landscape.

2 PLAY WITH COMPOSITION. To get his shot, Pulcinelli composed the scene using several zoom settings on his 70–200mm f/4 Canon IS zoom, mounted on a Canon EOS 40D. He decided on the 120mm (equivalent) focal length because it gave him a general Rule of Thirds placement for the farmhouse.

HOW-TO

ADD DEPTH WITH A WIDE-ANGLE LENS Move in close to enlarge foreground elements and shrink the background. Your scene will seem unusually deep.

SHOOT PORTRAITS WITH MODERATE TELES The human face is most flattered by by focal lengths in the 70mm to 105mm range. If portraits are important to you, consider a high-speed 85mm.

GET MORE FRAMING FLEXIBILITY If you often wish for more reach or more breadth when framing, try an all-in-one zoom. An 18–200mm zoom range provides plenty of composing options.

YOUR OTICAL ARSENAL

THE PERFECT KIT

Covering the focal-length bases

WONDERING HOW to build out your kit so you're optically ready for whatever subject comes your way? In addition to the macro lens discussed below, start with...

- **High-speed wide-angle zoom.** A 24–70mm f/2.8 on a full-frame body, stabilized if possible, will prepare you for large group portraits, tight interiors, landscapes and more.
- **70–200mm f/2.8.** Again, stabilized, this will set you up for portaits, sports, products, weddings, wildlife, and more.
- **Supertele.** Get the 300mm f/4 if you can't afford the f/2.8. A teleconverter will get you out to 420mm for killer sports and wildlife.
- **Wild card.** A fisheye, tilt-shift, or mirror lens can set your work apart.

GETTING CLOSE

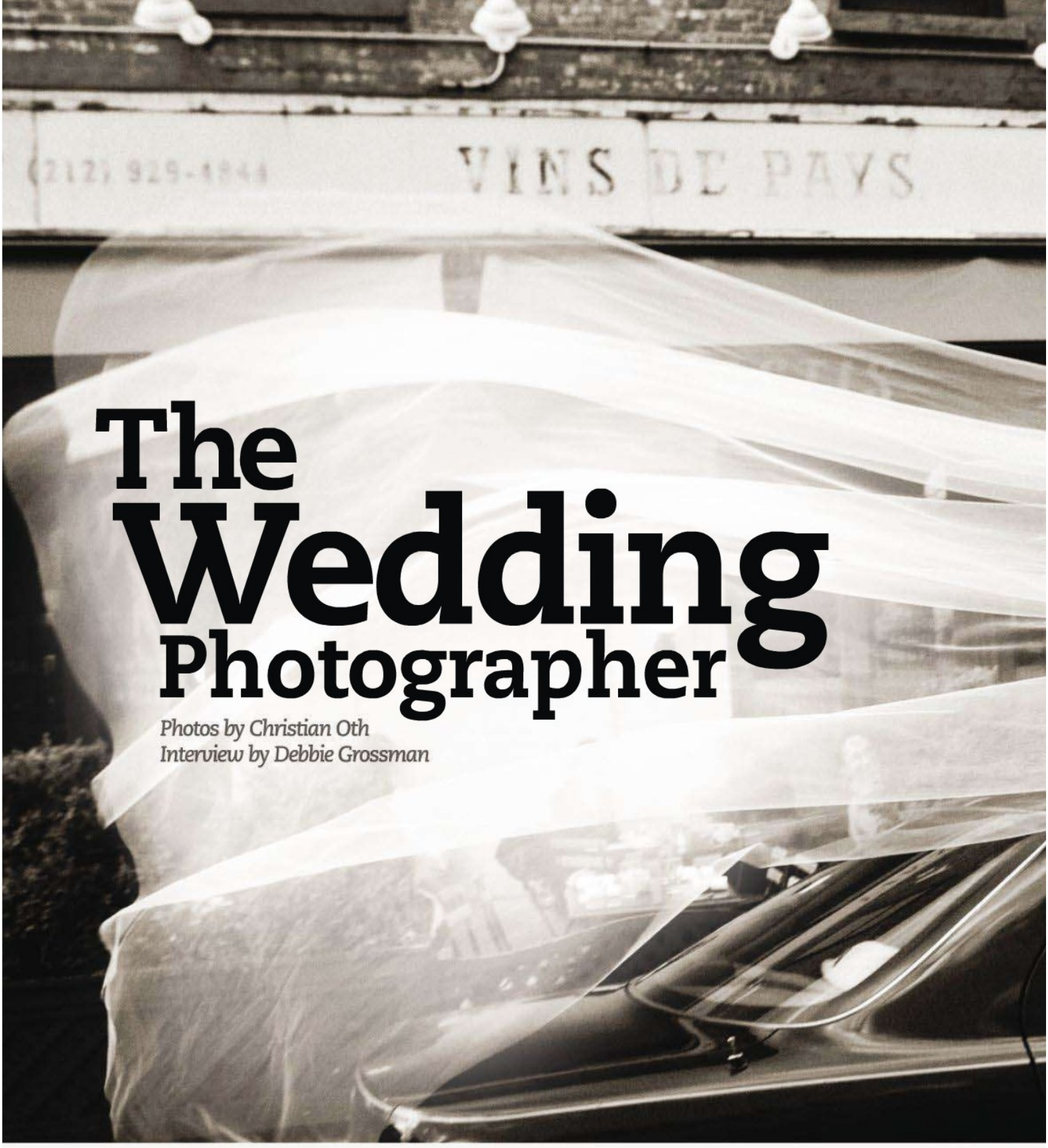
MACRO OPTIONS

When close isn't close enough

IF YOUR PICTURES aren't good, it's because you're not close enough. (So said the famous photographer Robert Capa.) Which is why we should all own at least one macro lens. Here are some tips for getting really close.

- **Magnifying power.** Don't settle for a close-up lens that is anything less than a true macro, meaning one that will magnify your subject 1:1 or life-size. Although Alessio Cola used the 1:2 manual-focus 55mm f/2.8 Micro-Nikkor for the blueberries below, he could have bumped up magnification to 1:1 by using Nikon's dedicated PK-13 extension tube. (Shooting at 1:1 means the image of your subject on the sensor is life-size.)
- **Focal length.** Choose macro lens with a longer focal length (such as 100mm instead of 60mm), if defocused backgrounds and selective focus matter to you.
- **Macro-focusing rails.** These are almost a must for precision focusing at 1:1 close-up distances.
- **Extension tubes.** If you want to explore close-ups but can't spring for a macro lens, this option is more affordable, and also offers a choice of magnifying powers.

ALESSIO COLA/FOTOLIA.COM



The Wedding Photographer

Photos by Christian Oth
Interview by Debbie Grossman

If you're a photographer, sooner or later you'll be tapped by friends or family to shoot a wedding. But how do you get amazing photos? We asked renowned wedding shooter Christian Oth to tell us how he does it, and to give us hints on how to handle the most challenging parts of the wedding day.

DESPITE STARTING out as a second photographer for a wedding shooter who didn't think he was good enough to be a first, Christian Oth, now 43, has an extremely successful career running his own New York City-based wedding studio. Our sister magazine *American Photo* has named him one of the top 10 wedding photographers, and his work has been featured in, among others, *New York* magazine, *Martha Stewart Weddings*, and *The New York Times Magazine*.

LUCKY BREEZE
A sudden gust outside New York's Pastis bistro made this shot.

Describe your style.

Unscripted. But it's mostly photojournalistic, with a bit of fashion

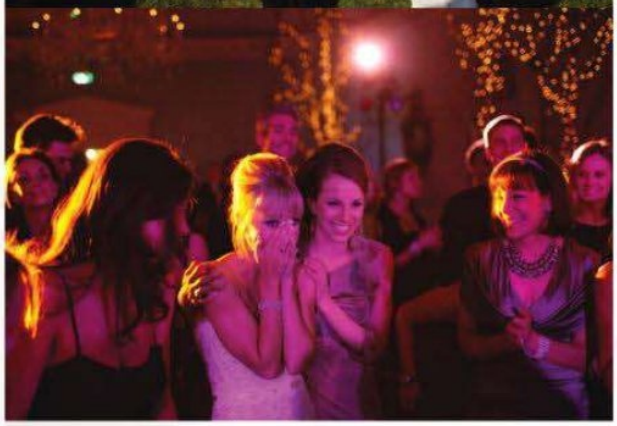
photography mixed in. I try not to interrupt the wedding or events throughout the day too much.

How do you anticipate the best moments? The ability to predict them comes mostly from experience. One key moment to be there for: When a bride steps into her dress, more often than not her dad comes into the room soon after, usually just before she leaves for the ceremony to walk her down the aisle. Sometimes I'm in another room photographing another detail shot, but I always want my assistant to let me know when her dad will be coming in.

What's the best way to set your cameras? Always have one ready that's just set for quick snaps. Keep it on P—for Professional! For those shots, I use a Canon EOS 5D Mark II with a 24–70mm lens. I try to use flash as little as possible, but sometimes I'll mount a flash on it. I mainly shoot with a Canon EOS-1Ds Mark III—that's my first camera and my "fine art" camera. I also carry lots of prime lenses: A 35mm f/1.4 and 50mm f/1.2, a 24mm f/1.4, and a 85mm f/1.2—all for different situations. I shoot a lot with the 35mm and 50mm. Those are great for details and bridal portraits.

How can you carry all that stuff? My assistant wears a backpack. I carry the 1Ds, 5D, and three other lenses in a pouch that I sling over my shoulder. I find this the most comfortable way to work; I can exchange lenses very quickly.

What are the most important things to shoot, besides the couple? There are always certain details that I come back with. I take a picture of the dress, the shoes, the outside of the buildings where the events take place, and details of the event and the locale.



The bridal suite, accessories, and bouquet are key, too.

I always mention this to brides: Make sure that the bouquet is in the bridal suite. It's not a given that it will be where she's getting ready—sometimes it's at the church, for example. But I try to do the bridal portraits beforehand and it's good to have the flowers there. And get help keeping the room clean! You have no idea how many rooms I've been in that were completely messy, and I didn't know where to point my camera.

What's the best time to shoot reception still lifes?

Toward the end of the cocktail hour. We usually work in teams of two: One works the cocktail hour and gets the people interacting—that's when we photograph most of the guests. During a typical wedding I spend half the cocktail hour photographing the bride and groom and doing portraits, then I go to the reception space and get all the décor shots. The best time to do that is about 15 minutes before they let the people in—that way there's water in the glasses and the candles are lit. I try to get shots of people walking in, too.

I do long exposures as people are sitting down. I spend a lot of time on this—15 minutes during a wedding day is a long time. Most I shoot on a tripod on the lowest ISO possible. My assistant helps me—we bring in a little video light to highlight details, a Frezzi by Frezzolini. They're great, very simple and durable. We use them with Bescor batteries, which are also very small—you can clip them to your belt. I sling the light over my neck and if I need it, I use it myself or have my assistant hold it.

How much CF-card memory do you need?

I bring about 150GB, but I don't usually fill them all up. I shoot a 32GB card as my last card of the day. Knock on wood, I've never had a card go bad.

STYLISH AND NATURAL **Clockwise from top left: A great shot of the recessional is key; shooting the bride backlit by a window lends an etherial look; to get the couple between the vines on a muddy day, Oth convinced them to let him drive them to another part of the property; rain can't spoil a wedding on New York's Park Avenue; Oth caught these little girls watching the bride and groom; don't forget to shoot the couple kissing; Oth avoids flash when he can, as in this reception image, shot at ISO 400 and f/1.4.**

What lighting gear do you recommend?

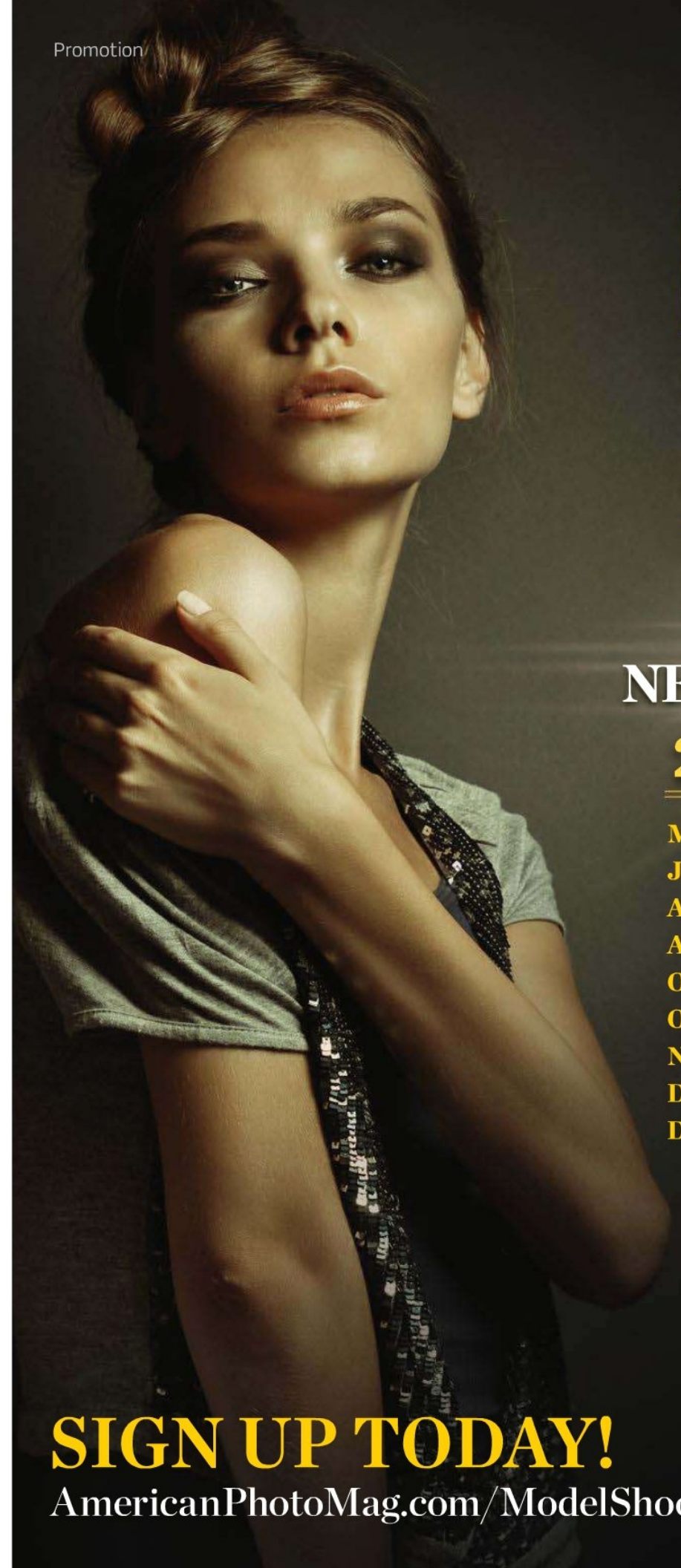
I use a Profoto Pro 600B lighting pack—I can really dial it down but it has 600Ws of power if I need it. I'm always in favor of less equipment. Sometimes I don't even bring that light. You can do a lot with camera flash, especially when it's an outdoor wedding and all you need is fill. Sometimes I bring a second light or an octobank—if I have more than one assistant. When the gear gets more complex, you have to deal with logistics, and I shy away from that as much as I can.

How much time should you spend with the couple to make sure you get something good?

That depends on the couple. It starts at five minutes—give me five minutes and I can get great portraits. I've dealt with way too many weddings where everything is running too late and the couple session gets nixed, but I have to put my foot down: We have to do it. On average, I spend about 20 minutes to half an hour. You've got to have a picture of them looking at the camera, kissing, looking at each other in an interesting or romantic setting—I can do that very quickly.

How do you get such a naturalistic look?

By putting couples into natural situations where they feel most comfortable. My goal is to get them to engage with one another. A lot of times I'll tell them: "Wouldn't it be great if you..." and then I make a suggestion, like running through a field. Afterward they are in a happy moment, and that's when you often get great pictures. In these photos are so many genuine moments that I didn't create—I was just there for them.



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DSLR TEST

MASS APPEAL

Nikon's D5100 offers something for everyone

NIKON KICKSTARTED a revolution in the photography world when it included video recording in the D90, a DSLR that also wowed shooters with its fine imaging and great handling. Now Nikon's new D5100 finesses that combo further. It's the company's first to include full 1920x1080-pixel recording at 30 frames per second. Nikon's D7000 and D3100 can record 1080p, but only at 24 fps—great for cinema nerds, but not for watching home movies on regular high-definition TVs. The D5100 can please both crowds.

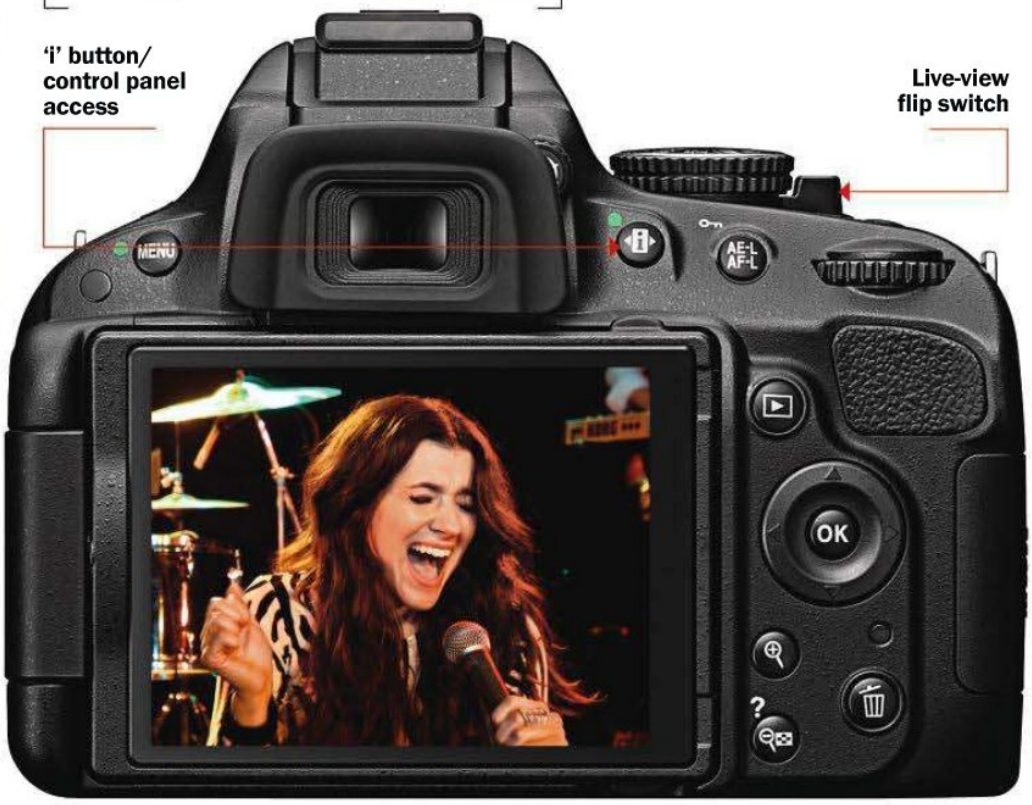
Plus, Nikon improved the D5100's still-imaging capabilities over its predecessor's. The D5100 has the same 16.2MP DX format (1.5X lens factor) sensor as the

SATOSHI KOBAYASHI

NIKON D5100

16.2MP CMOS APS-C sensor
1080p 30-fps HD video
3-in. articulated LCD screen
$800, body only; $900, with AF-S Nikkor 18–55mm f/3.5–5.6G VR lens

AMATEUR PRO



"A great imaging tool well adapted to a wide array of shooting situations."

D7000, giving you almost 4 million more pixels than the D5000.

Low-light shooters will appreciate the D5100's extra 2 stops of sensitivity, topping out at ISO 25,600. Add in the 3-inch, 921,000-dot articulated LCD screen, and the D5100 looks like a full-featured camera for the everyday shooter, what we call a step-up model.

Step-ups have significantly greater capabilities than basic entry-level DSLRs, but, by foregoing the more rugged bodies with weathersealing, come in at a price far lower than enthusiast models. The D5100's current main competitors here are the Canon EOS Rebel T3i and the Sony Alpha A580, which we have not yet tested.

In the Lab

After running the D5100 through the Popular Photography Test Lab, we can say that the camera's images look great. In fact, the D5100 earned an Extremely High rating in overall image quality—falling just short of an Excellent rating. With a resolution result of 2490 lines per picture height, it was a hair's breadth away from our top score's cutoff of 2500 lines.

In our color accuracy test, the D5100 easily achieved an Excellent score with an average Delta E of 6.31 for 8-bit TIFFs converted from 14-bit compressed NEF RAW files captured by the camera.

Unlike Nikon's higher-end DSLRs, which give you an option of compressed or uncompressed RAW files, the D5100's are stored using a proprietary form of compression. The advantage is that the RAW files are somewhat smaller.

NIKON D5100
WHAT'S HOT
Near-Excellent stills and great full-HD video.
WHAT'S NOT
Too many controls lost in the menus.
WHO IT'S FOR
Those looking to step up to a serious shooter's DSLR, at a less serious price.

DAN BRACAGLIA (LCD IMAGE)

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Of course, purists would argue that any compression is a bad thing. But as far as color was concerned, we had no problem with the D5100's compressed RAW files. And the advantage of the smaller file size is that you can fit more shots per burst in continuous shooting mode. The D5100 gives you 16 RAW shots per burst compared with the Canon EOS Rebel T3i's 6 per burst.

The D5100 kept noise to a Low or better rating all the way up to ISO 800. Canon's T3i, with its 18MP sensor, was able to do so only up to ISO 400, giving the Nikon a 1-stop advantage in terms of critically clean images. Once you step up in sensitiv-

For info on how we test DSLRs, go to PopPhoto.com/reviews/cameras/How-We-Test.

TEST RESULTS

IMAGE QUALITY ISO 100–800

EXTREMELY HIGH

POOR — EXCELLENT

RESOLUTION ISO 100

2490 EXTREMELY HIGH

1500 2000 2500 3000 3500 4000

POOR — EXCELLENT

COLOR ACCURACY

EXCELLENT 6.3

HIGH — EXCELLENT

NOISE AT ISO

VERY LOW 1.2	100
VERY LOW 1.3	200
LOW 1.5	400
LOW 1.8	800
MODERATE 2.5	1600
◀ UNACCEPTABLE 3.6	3200
◀ UNACCEPTABLE 4.6	6400
◀ UNACCEPTABLE 6.1	12800
◀ UNACCEPTABLE 7.7	12800

3.0 2.5 2.0 1.5 1.0 0.5

UNACCEPTABLE — EXTREMELY LOW

HIGHLIGHT/SHADOW DETAIL

EXTREMELY HIGH

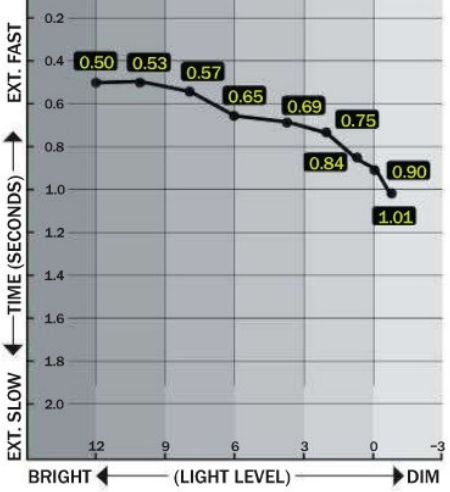
LOW — EXTREMELY HIGH

CONTRAST

HIGH

LOW — EXTREMELY HIGH

AF SPEED



ity, though, the Canon takes the 1-stop lead. The T3i maintained acceptable levels of noise up to ISO 3200, while the D5100's last level of acceptable noise in our test was at ISO 1600.

If you're willing to accept noisy ISOs in exchange for extreme low-light shooting, you should note that the D5100 extends up to an equivalent of ISO 25,600 (Nikon calls this Hi 2) while Canon's T3i reaches only ISO 12,800, a stop less advantage.

If there's one aspect of performance in which Canon's T3i takes a clear lead, it's in our autofocus speed test results. Since the D5100 doesn't have an AF coupling pin, you have to use lenses that have internal AF motors in order to have autofocus. For the Nikon system, that means G-series lenses. So we used the AF-S Nikkor 50mm f/1.4G to test the D5100 instead of the D-series Nikkor, which we find autofocuses slightly faster.

At the brightest part of our test, the D5100 focused in 0.50 second, while the T3i did so in 0.36 second at the same light level. The Canon remains more than a tenth of a second faster than the Nikon all the way down to the night-like darkness of EV 0. The gap tightened at EV –1 with the D1500 focusing in 1.01 seconds and the T3i in 0.95 second.

Both cameras become less consistent at EV –2, though the Canon was able to achieve focus regularly enough for us to report a number for it at this level. The Nikon often failed to focus at all at EV –2, so we did not include that light level in our test results. Neither is rated by the manufacturers to focus in such dim light. Nikon rates the D5100's AF system to function down to only EV –1, and the fact that it focused in about a second at that level is quite impressive.

As with many Nikons, the D5100's metering sensor works with the AF system when tracking. In continuous AF and continuous drive mode, it did an impressive job of keeping its focus on subjects as they moved toward or away from the camera, while capturing images at 4 frames per second.

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In the Field

The D5100 is comfortable to hold for such a compact DSLR. The contours of the grip provide plenty of leverage to maneuver the camera as needed and textured rubber on front and back keep your fingers from slipping.

Like most DSLRs of this class, it relies heavily on the LCD for controls. Press the "i" button on the back twice and you get to an on-screen control panel that makes changing most settings fairly quick. Still, we preferred the various dedicated buttons on Canon's T3i to the D5100's scarcity of hard buttons. Example? At first we searched in vain to find a button for ISO, until we figured out that you can assign that to the function button on the left side of the front of the camera.

Given that the D5100 should be made to appeal to shooters stepping up from compacts or superzooms, we were surprised that Nikon didn't let the four-way control pad access various functions the way it would on a compact and does on the T3i. Once you get the hang of the controls though, shooting is easy.

If you like live view or video shooting, the D5100 is great. A flip switch next to the mode dial lets you enter live view very fast. Though we initially thought we'd trigger it accidentally, this didn't happen once during field testing.

Canon's T3i forces you to turn the mode dial to the movie setting to record video, and we found switching between still and video recording cumbersome. Not so with the Nikon D5100. Once in live view, you can start recording video by pressing the button marked with a red dot, conveniently located near the shutter button. This makes for a seamless switch between the still and video shooting experience.

SPECIFICATIONS

IMAGING: 16.2MP effective, APS-C sized CMOS sensor captures images at 4928x3264 pixels with 14 bits/color in RAW mode.

STORAGE: SD/SDHC/SDXC stores JPEG, NEF RAW, and RAW + JPEG files.

BURST RATE: Full-sized JPEGs (Fine mode), up to 100 shots at 4 fps; RAW, up to 16 shots at 4 fps; RAW + JPEG, up to 10 shots at 4 fps.

AF SYSTEM: TTL phase detection with 11 illuminated focus points (single center cross-type); single-shot and continuous AF. Tested sensitivity down to EV –1 (at ISO 100, f/1.4).

LIVE VIEW: TTL contrast detection.

SHUTTER SPEEDS: 1/4000 to 30 sec, plus B (in 1/3-EV increments); 100,000-cycle rating.

METERING: 420-pixel RGB sensor TTL metering, evaluative, centerweighted, and spot (approx. 2.5% of viewfinder), EV 0–20 (ISO 100); EV 2–20 (in spot mode).

ISO RANGE: ISO 100–25,600 (in 1/3-EV increments).

FLASH: Built-in pop-up with i-TTL autoflash, GN 39 (ISO 100, feet); flash sync to 1/200 sec.

VIEWFINDER: Fixed eye-level pentamirror.

LCD: 3-in. articulated TFT with 921,000-dot resolution.

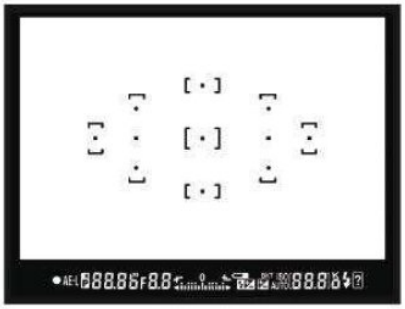
OUTPUT: Hi-Speed USB 2.0, mini-HDMI video, GPS terminal (for use with Nikon GP-1 optional GPS unit).

BATTERY: Rechargeable EN-EL14 Li-ion, CIPA rating 660 shots (with optical viewfinder).

SIZE/WEIGHT: 5.0x3.8x3.1 in., 1.4 lb with an SD card and battery.

STREET PRICE: $800, body only; $900, with AF-S DX Nikkor 18–55mm f/3.5–5.6G VR lens.

INFO: www.nikonusa.com



VIEWFINDER TEST: Accuracy, 95% (Excellent); Magnification, 0.8X (Very Good)

CONTINUES ON PAGE 120

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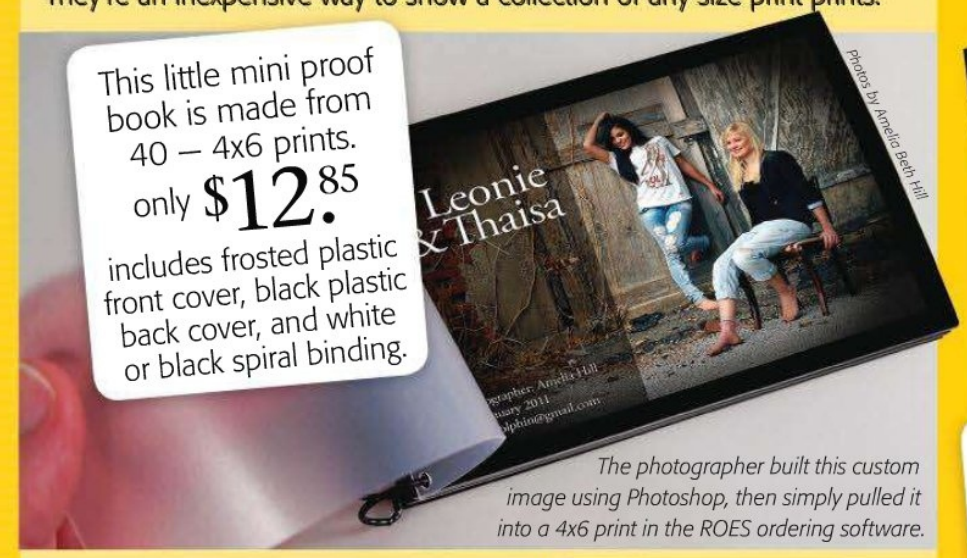
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Photos by Amelia Beth Hill

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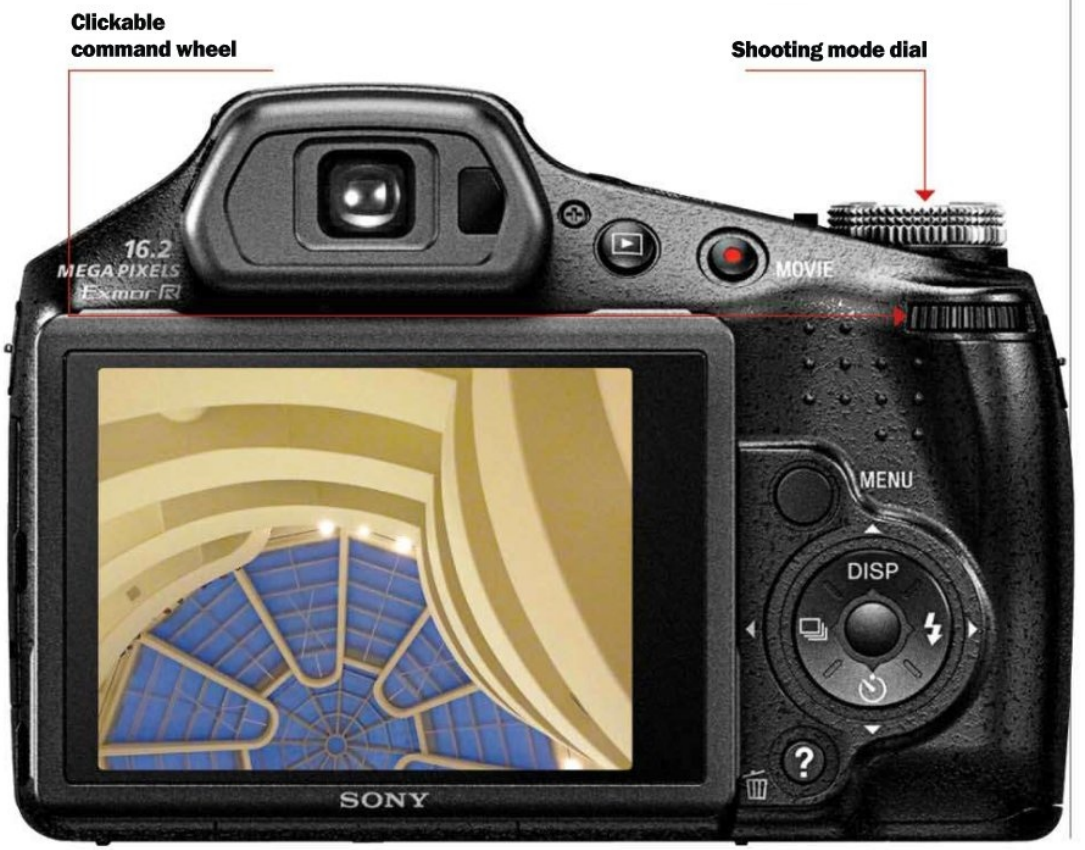
WE WRITE a lot about DSLRs and ILCs here, and all of the advantages of interchangeable lenses. But many people yearn for a camera with a built-in, long-range zoom lens that covers wide-angle to supertele—and that doesn't cost a thousand dollars or more.

We call this type of camera a superzoom, and Sony's most interesting model this year is the Cyber-shot DSC-HX100V ($450, street). It boasts a 16.2MP CMOS sensor, a lens with a 30X focal range equivalent to 27–810mm, an electronic viewfinder (EVF), and a conveniently tilting LCD to handle awkward shooting angles.

Like most superzooms, the HX100V has plenty of fancy, fun features; unlike most, it includes 3D modes. But because our main focus is always on picture quality, we ran the HX100V through the Popular Photography Test Lab to see how its images fare against our standards. The results were interesting, to say the least.



In the Lab

Despite the fact that the HX100V has about the same number of pixels as the Nikon D5100 tested in this issue, its resolution score was nowhere near what we saw with that DSLR. This Sony earned a High rating with 1770 lines per picture height, while the Nikon turned in 2490 lines for an Extremely High rating.

This comes as no surprise, as the Nikon's sensor has vastly more surface area—about 14

SONY CYBER-SHOT DSC-HX100V
WHAT'S HOT
High-res images, convenient zoom ring.
WHAT'S NOT
Sluggish manual focus, wonky controls.
WHO IT'S FOR
Shooters who want the long zoom, but not swappable lenses.

PHILIP RYAN (LCD IMAGE)

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Common camera straps do everything wrong - they are uncomfortable, they don't keep the camera where it is convenient, and they generally aren't very secure. Sniper straps allow you to shoot the way you are supposed to.

Neck Strap vs. Shoulder Strap

Conventional camera straps (especially the ones that come with your new DSLR) leave the weight of your camera and your lens pulling at the pressure points on your neck, or unevenly at a single spot on your shoulder if you try to use it as a shoulder strap. These straps are usually attached to fixed, non moveable eyelets on the sides of the camera, and allow one axis of motion - the banging of the camera on your chest as you walk, or of the camera sliding off your shoulder if you use it as a shoulder strap. The Sun Sniper straps are based on a bandoleer shoulder sling design. The weight of your camera and lens are distributed diagonally along a stylish, padded, superbly comfortable shoulder strap. Sniper Straps redefine comfort - they even feature their own built in shock absorber!

The Right Way to Shoot

Conventional camera straps are very limiting. Aside from the discomfort of having a DSLR and a normal sized lens bouncing off your chest and chafing your neck, how practical is it to shoot with a camera around your neck? Or move from landscape to portrait shots when shooting a wedding? Or hiking up in the hills for hours at a time? Sun Sniper Straps are based on the same concept as a carabiner rifle sling developed for US Calvary in 1885. A soldier needed a quick draw strap that kept his weapon out of the way, but readily available and easy to bring to firing position. The Sniper Strap follows the same line of logic as applied to serious photography. A solid, stainless steel ball bearing carabiner swivel mount attaches to the camera via the tripod screw. The carabiner glides smoothly along the length of the strap as you pull up to take a shot. There is absolutely NO friction, and no interference in switching from horizontal to vertical shots. The Sniper shoulder sling strap allows for a complete, fluid range of motion that is impossible with conventional straps. Your camera hangs securely at your side, at an adjustable height set to your preference. Ready when you are, but out of your way.

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The Sun Sniper Pro and Sniper Compact straps are the most secure camera straps on the planet. They both feature an embedded steel anti-theft wire inside the strap . Sun Sniper users don't need to worry about camera theft by would-be thieves attempting to cut the camera strap, about the strap tearing during outdoor activities, or about the camera sliding off of you when you are not using it. Sun Sniper Straps are made to keep your camera with you.

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Ultra Thin Frame
The glass of this lens is precision machined and attached using Retainer Ring Mount Technology giving this filter an unsurpassed durability. An ultra thin frame also makes it wide-angle lens compatible.

Wide-Band Polarizing Film
The Kenko Zeta wide-band polarizing film transmits light more evenly across the visible spectrum to give a more neutral color balance than traditional circular polarizing filters provide.

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times as much—allowing for larger pixels, less noise, and less need for resolution-robbing noise reduction. Partly due to its limited resolution, the Sony scored an Acceptable rating in overall image quality.

The question for shoppers, though, is: How much resolution do you need? If you don't plan to print larger than letter-paper size, never crop your photos, and are more likely to share your images online or as 4x6 prints, then the Sony's resolving power should be enough for you. And as superzooms go, it has good resolution. The Fujifilm FinePix HS10 we tested last year scored 1550 lines at its best. At its top sensitivity of ISO 3200, the Sony dropped to 1500 lines at its worst. Not bad.

Like a lot of non-DSLRs, the HX100V scored only Extremely High in our color accuracy test, with an average Delta E of 9.3. Though not up to today's DSLR standards, it still beats most color films, which would score 11 or above in our test.

Note that the Sony does not shoot RAW files; we tested its highest-quality JPEGs at the camera's default settings.

If you can accept that the HX100V sacrifices resolution to control noise, then you should be pleased with its noise performance. It scored Extremely Low at both ISO 100 and ISO 200, stepping up to Very Low at ISO 400. Impressively for a non-DSLR, it scored Moderately Low at ISO 800 and ISO 1600 and reached Unacceptable noise only at its top sensitivity of ISO 3200. For comparison, the Fuji HS10 reached Unacceptable noise at ISO 1600.

Since they use contrast detection for autofocus, we don't run our usual AF test on compacts or superzooms. But the HX100V's AF capabilities are average for its

CONTINUES ON PAGE 88

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class. In dim light it slows considerably and might occasionally have trouble finding focus.

If you have to turn to manual focus, you'll appreciate the control ring around the lens, which handles both focus and zoom. Like a lot of electronically driven focusing rings, it can take a number of turns to get the focus you want, but it's considerably more ergonomic and convenient for focusing than a tiny wheel or pushbuttons.

In the Field

One of the things most superzoom fans like is their DSLR-like body design. Sony's HX100V does a decent job of emulating a DSLR with its prominent rubbery grip, command wheel on the upper right of the camera back, and focus/zoom ring on the lens barrel. We like its design and found it comfortable to use. The focus ring on the lens feels sluggish next to most DSLR lenses; zoom action is better, though the loud whir of the motor might surprise you.

For photographers who are used to composing shots only on an LCD, an electronic viewfinder offers plenty of advantages. The one on the HX100V was about average—not as good as the EVF on Sony's Alpha A55 DSLR.

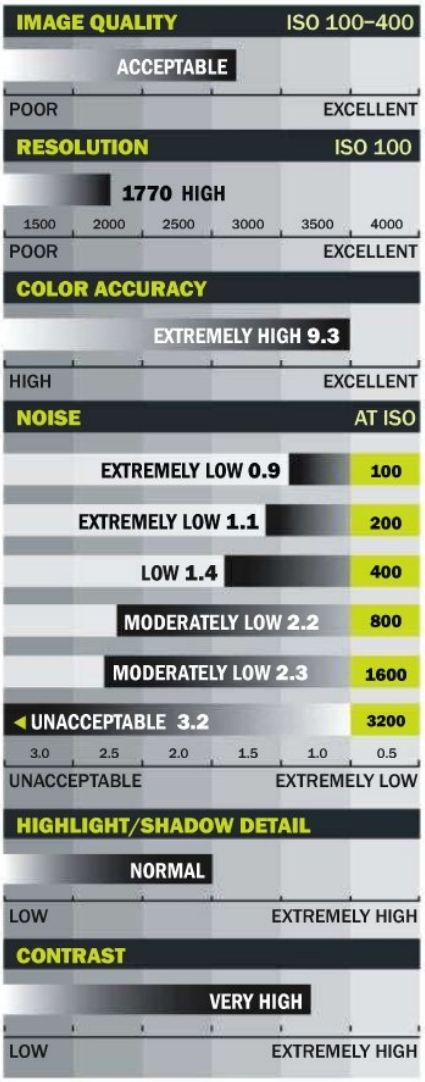
To change shutter speed, aperture, exposure compensation, or ISO, you use the clickable command wheel on the camera back. Click once to get to the last setting accessed, and then again to cycle through to the next one you want. This can be a good way to control settings, but the wheel was a bit too hard to press and sometimes didn't register. And its tactile feedback could be better—occasionally it clicks without changing setting.

Most other functions worked well. Face detection reliably finds faces, using them to set focus and metering. Intelligent Sweep Panorama shoots a long burst of images as you pan in one smooth motion, and stitches them together to create panoramas up to 1920x4912-pixels. While these are about one-half the height of the camera's normal images, it's the simplest way we've experienced to capture such wide panos.

You can make 3D panoramas the same way, and we found this the best of the Sony's three methods of 3D capture. 3D Sweep Panorama typically yields images that show meaningful depth and occasionally seem to extend out of the screen toward the viewer, while 3D Still image capture creates a fake 3D effect by shooting two

CONTINUES ON PAGE 116

TEST RESULTS



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D3100

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OLYMPUS

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Powerfully Simple

The new Olympus PEN E-PL1 is truly greater than the sum of its parts. This surprisingly small camera body is packed with technology normally found in bigger, bulkier cameras and High Definition (HD) camcorders. With features like interchangeable lenses, the new Live Guide and one-touch HD video - the E-PL1 is an easy-to-use and portable all-in-one package that travels with you to capture all the details of your life.

SONY

Alpha NEX-3

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Vixia HF R21

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HD Dual Flash Memory Camcorder

The VIXIA HF R21 has a 32GB internal flash drive, together with two SDXC-compatible memory card slots, Canon's Relay Recording, a 3" Touch Panel LCD and Smart Auto. Its Genuine Canon HD Video Lens with 28x Advanced Zoom and Dynamic IS work in combination with Canon's Full HD CMOS Image Processor to deliver the crisp, lifelike video your HDTV demands.

Vixia HF G10

NEW!

A Video Enthusiast's Dream

Canon's flagship, the VIXIA HF G10 incorporates a 32GB internal flash drive, dual SDXC-compatible card slots, Canon's 10x HD Video Lens with an 8-blade iris and a dedicated manual focus ring for enhanced control. The HF G10 also features Canon's HD CMOS Pro Image Sensor, a 3.5" Touch Panel LCD, Native 24p recording, Cinema-Look Filters, full manual control and more.

Vixia HF S200

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Star Power

ONE OF CANON'S BEST GETS BETTER

A YEAR AGO Canon unveiled an upgraded version of one of its crown jewels: the 70–200mm f/2.8L IS lens. The original, debuting nearly 10 years ago as one of the first f/2.8 lenses with IS, was fast, plus sharp at the wider focal lengths. It was heavy, though, and at $1,700 (street), expensive. And here's Version II, even heavier and even more expensive ($2,300, street). What's up with that?

First, this latest upgrade incorporates an expensive fluorite element for better control of chromatic aberration. Between that and five elements of ultralow-dispersion glass, this zoom has more elements of specialized glass than any other Canon optic.

The lens feels very solid, with smoothly turning focus and zoom rings and a completely stationary barrel. It's the heaviest lens in its (tested) class, and like all Canon L-series lenses, is well-built and nearly weatherproof. Our only peeve is the included hood, which we found stiff and awkward to attach or detach in its reverse-mounted position.

Optical bench tests of sharpness and contrast found Excellent-range results at 70mm and 135mm, and Very Good at 200mm. While a significant improvement over its predecessor, which never rose above Very Good, its numbers were slightly below the comparable Nikon and Tamron glass, which scored Excellent at all focal lengths.

Distortion and vignetting results were similar: While far better than the previous Canon (which showed up to Very Visible distortion), the new Canon fell slightly behind the Nikon, which produced Imperceptible distortion and no edge falloff at 70mm.

Subject magnification was near the top of its class—only the Tamron bested it. Canon's improved IS provided users between 2.5 and 4.5 stops of shake correction. While a few lenses have matched 4.5 stops over the years, none has ever topped it.

Clearly one of the most desirable lenses in the Canon catalogue, this pricey zoom should appeal to all serious Canon shooters, even those who own the previous version. *—Julia Silber*

SPECIFICATIONS

70–200MM (68.72–193.94mm tested), f/2.8 (f/2.71 tested), 23 elements in 19 groups. Focus ring turns 120°. Zoom ring turns 70°. Focal lengths marked at 70-, 100-, 135-, and 200mm.
DIAGONAL VIEW ANGLE: 34–12 degrees
WEIGHT: 3.60 lb
FILTER SIZE: 77mm
MOUNTS: Canon AF
INCLUDED: Lenshood, case, tripod mount
STREET PRICE: $2,300

TEST RESULTS

DISTORTION: At 70mm, 0.18% (Slight) barrel. At 135mm, 0.12% (Slight) pincushion. At 200mm, 0.20% (Slight) pincushion.
LIGHT FALLOFF: At 70mm, gone by f/3.5. At 135mm, gone by f/4. At 200mm, gone by f/5.
CLOSE-FOCUSING DISTANCE: 45.91 inches.
MAX. MAGNIFICATION RATIO: At 70mm, 1:11.7. At 135mm, 1:6.19. At 200mm, 1:4.45.
IMAGE STABILIZATION: 2.5–4.5 stops.

CANON 70–200MM F/2.8L IS II USM
WHAT'S HOT
Very sharp, with top-performing IS system.
WHAT'S NOT
Physically (and financially) heavy.
WHO IT'S FOR
Canon shooters who want the very best.

AMATEUR — PRO

The included, removeable tripod collar has index marks at the horizontal and vertical positions. The lens can be set to full-range or limited AF, and to normal or panning IS.

SUBJECTIVE QUALITY FACTOR

Our standard lens test, SQF rates sharpness by print size

70 MM

Size	5x7	8x10	11x14	16x20	20x24
2.8	96.6	95.6	93.1	88.1	81.8
4.0	96.5	95.5	93.0	87.8	81.3
5.6	96.6	95.5	93.0	87.8	81.3
8.0	96.6	95.5	93.1	88.0	81.6
11.0	96.6	95.5	93.0	87.8	81.3
16.0	96.3	95.2	92.4	86.7	79.6
22.0	95.7	94.4	91.3	84.6	76.1
32.0	95.2	93.8	90.1	82.1	71.7

135 MM

Size	5x7	8x10	11x14	16x20	20x24
2.8	96.6	95.6	93.1	87.9	81.5
4.0	96.8	95.8	93.5	88.8	83.1
5.6	97.1	96.3	94.2	90.3	85.5
8.0	97.4	96.6	94.8	91.3	87.2
11.0	97.3	96.4	94.4	90.8	86.4
16.0	96.7	95.8	93.2	86.4	82.6
22.0	95.8	94.8	91.4	84.9	76.8
32.0	95.1	93.6	89.9	81.7	71.1

200 MM

Size	5x7	8x10	11x14	16x20	20x24
2.8	93.5	90.1	80.1	64.8	52.9
4.0	93.6	90.3	80.3	65.2	53.9
5.6	95.4	93.2	86.8	76.1	67.0
8.0	96.7	95.2	91.1	84.2	76.0
11.0	96.9	95.6	91.8	85.5	79.6
16.0	96.6	95.1	90.8	83.6	76.8
22.0	95.2	93.8	88.2	78.5	69.4
32.0	94.2	91.4	83.1	69.1	56.9

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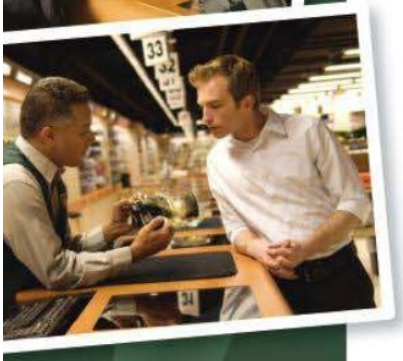

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- 6.6-21.6mm f/3-5.8 (35mm equiv: 37-122mm) • SD/SDHC/SDXC Card Slot
- Dimensions: 3.71 x 2.43 x 1.23"

#CAPSA800 Black, Red, Silver*

10 Mega Pixels

Canon Powershot Elph 500HS

- 3.2" LCD Monitor • Improved Low Light
- 4.4x Optical Zoom • 4x Digital Zoom
- 4.3-18.8mm f/2-5.8 (35mm equiv: 24-105mm) • SDHC/SDXC Card Slot
- Full 1080p HD Video with Stereo Sound
- Dimensions: 3.96 x 2.18 x 0.98"

#CAPSE500 Brown, Pink, Silver*

12 Mega Pixels

Canon Powershot S95

- 3.0" LCD Monitor • RAW + JPEG Files
- 3.8x Optical Zoom • 4x Digital Zoom
- 6-22.5mm f/2.0-4.9 (35mm equiv: 28-105mm) • SD/SDHC/SDXC Card Slot
- 1280x720p HD Video with Stereo Sound
- Dimensions: 3.93 x 2.30 x 1.16"

*#CAPSS95**

10 Mega Pixels

Canon Powershot G12

- 2.8" Vari-Angle LCD • 1280 x 720p HD Video Capture • Stereo Sound for Video
- 5x Optical Zoom • 4x Digital Zoom
- 6.1-30.5mm f/2.8-4.5 (35mm equiv: 28-140mm) • SD/SDHC/SDXC Card Slot
- RAW File Mode • Dim.: 4.41 x 3 x 1.9"

*#CAPSG12**

10 Mega Pixels

Nikon Coolpix S8100

- 3" Ultra High Res. LCD
- 10x Optical Zoom • 1080p Full HD Video
- 5.4-54mm f/3.5-5.6 (35mm equiv: 30-300mm) • SD/SDHC/SDXC Card Slot
- Enhanced Low-Light Photography
- Dimensions: 4.1 x 2.4 x 1.2"

#NICPS8100 Black, Gold, Red*

12 Mega Pixels

Nikon Coolpix P300

- 3" High Res. LCD • 4.2x Optical Zoom
- 4.3-17.9mm f/1.8-4.9 (35mm equiv: 24-100mm) • SDHC/SDXC Card Slot
- 4-Way VR Image Stabilization • Full HD 1920 x 1080 Video with Stereo Sound
- Dimensions: 4.3 x 3.1 x 32.3 x 4.1 x 1.3"

*#NICPP300**

12 Mega Pixels

Nikon Coolpix P7000

- 3" Ultra High Res. LCD
- 7.1x Optical Zoom • 720p HD Video
- 6-42.6mm f/2.8-5.5 (35mm equiv: 28-200mm) • SD/SDHC/SDXC Card Slot
- 5-Way VR Image Stabilization
- Dimensions: 4.5 x 3.1 x 1.8"

*#NICPP7000**

10 Mega Pixels

Olympus Stylus Tough-8010

- Shockproof, Waterproof, Freezeproof, Crushproof • 2.7" LCD
- 5x Optical Zoom • 5x Digital Zoom
- 5-25mm f/3.5-5.1 (35mm equiv: 28-140mm) • SD/SDHC Card Slot
- Dimensions: 3.9 x 2.5 x 0.94"

#OLST8010 Black, Silver*

12 Mega Pixels

Panasonic Lumix DMC-LX5

- 3" LCD • HD Video Recording
- 3.8x Optical Zoom • 4x Digital Zoom
- 5.1-19.2mm f/2-3.3 (35mm equiv: 24-90mm) Leica DC Vario-Summicron
- SDHC/SDXC Card Slot • Raw Recording
- Dimensions: 4.32 x 2.58 x 1.69"

#PADMCLX5 Black, White*

10 Mega Pixels

Sony CyberShot DSC-W310

- 2.7" LCD Monitor • 4x Optical Zoom
- 4.9x Digital Zoom (@ 8MP)
- 5-20mm f/3-5.8 (35mm equiv: 28-112mm)
- MS Duo/Pro Duo and SD/SDHC Dual Card Slot • Smile Shutter Technology
- Dimensions: 3.75 x 2.17 x 0.74"

#SODSCW310 Black, Silver*

12 Mega Pixels

Sony CyberShot DSC-TX10

- 3" Touch Screen • 1080i AVCHD HD
- Waterproof (10') & Shockproof (5')
- 4.43-17.7mm f/3.5-4.6 (35mm equiv: 25-100mm) • Dustproof & Freezeproof
- MS PRO Duo & SDHC/SDXC Card Slots
- Dimensions: 3.74 x 2.20 x 0.71"

#SODSCTX10 Black, Blue, Green, Pink, Silver*

16 Mega Pixels

Sony CyberShot DSC-H70

- 3" LCD Monitor • 720p HD Video
- 10x Optical Zoom • iAuto and Easy Mode
- 4.25-42.5mm f/3.5-5.5 (35mm equiv: 25-250mm) Lens • Soft Skin Mode
- MS PRO Duo & SDHC/SDXC Card Slots
- Dimensions: 3.98 x 2.24 x 1.10"

#SODSCH70 Black, Blue, Red, Silver*

16 Mega Pixels

MEMORY CARDS

CF Compact Flash

	Delkin			Kingston				Lexar			Sandisk			
	Std	Pro	Combat 91 MBs	Std	Elite Pro 133x	Ultimate 266x	Ultimate 600x	Platinum II 200x	400x	600x	Ultra II	Extreme 60 MBs	Extreme Pro 90 MBs	Extreme Pro 100 MBs
4GB	14.95	22.50	54.95	13.95	17.95	—	—	24.50	—	—	18.50	—	—	—
8GB	24.95	36.50	78.95	19.95	25.03	—	—	30.20	47.87	78.95	34.95	54.95	—	—
16GB	43.50	73.95	139.95	—	43.50	69.95	104.50	49.55	76.84	129.95	64.95	99.95	149.99	—
32GB	92.95	117.95	237.95	—	78.95	143.95	179.95	—	140.04	239.00	—	169.00	269.99	—
64GB	—	243.50	—	—	—	—	—	—	—	—	—	—	549.99	—
128GB	—	—	—	—	—	—	—	—	—	—	—	—	—	1,149.99

MSDUO Memory Stick Pro Duo

	Sony	
	Mark II 20 MBs	Pro-HG HX 30 MBs
2GB	10.99	—
4GB	17.95	—
8GB	—	27.44
16GB	—	50.00
32GB	—	112.58

SD Secure Digital

	Delkin		Kingston	Sandisk	Panasonic	Sony	
	Std	Micro	Micro Multi Kit	Standard Class 4	5 MBs Class 4	Std Class 4	Micro
2GB	8.95	9.95	8.50	6.99	7.95	6.95	7.63

SDXC* Extended Capacity

	Kingston		Lexar	Sandisk
	Class 6 15 MBs	Class 10 60/35 MBs	Class 10 20 MBs	Class 4 15 MBs
64GB	228.74	349.95	129.00	116.99
128GB	—	—	249.50	—

* **Note:** Not all devices support SDXC cards

SDHC-UHS-1 Ultra High Speed

	Kingston	Sandisk
	Ultimate XX 35 MBs	Extreme Pro 45 MBs
8GB	CALL	36.95
16GB	CALL	69.00
32GB	CALL	139.00

SD HC Secure Digital High Capacity

	Delkin			Kingston				Lexar			Panasonic		Sandisk				Sony		
	Pro Class 6	Pro Class 10	Micro	Standard Class 4	Standard Class 6	Class 10	Micro Class 4 Multi Kit	Std Class 4	Platinum II Class 6 100x	Professional Class 10 133x	Std Class 4 15 MBs	Gold Class 10 22 MBs	Std Class 4	Ultra Class 4 15 MBs	Extreme	Micro Class 4	Standard Class 4	Class 10	Micro Class 4
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8GB	19.95	23.50	29.95	13.95	17.50	19.95	16.95	15.92	19.95	25.95	20.23	37.89	13.95	18.99	24.95	14.97	15.99	26.95	18.00
16GB	39.50	49.50	39.95	27.95	37.50	39.95	42.95	23.95	30.80	40.95	39.02	84.89	27.95	29.95	48.95	29.95	34.99	49.99	—
32GB	79.95	95.95	—	65.95	—	76.95	99.95	43.50	60.65	69.95	—	239.95	52.95	64.95	97.95	79.95	69.99	86.50	—

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- Compact Micro 4/3 Design
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- High Sensitivity Up to ISO 12800
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- Dust Reduction System • Available in Black or Silver

*Kit with 14-42mm.....#PADMCGH2K**

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- Capture in JPEG or RAW
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- 3" HyperCrystal LCD
- ISO 100-6400
- 4/3 Full Frame Zuiko Specific Lenses
- Advanced Dust Reduction
- SD/SDHC Card Slot

Black Kit with 14-42mm Zuiko Lens.....#OLEP21442B
Black Kit with 17mm f/2.8 Zuiko Lens.....#OLEP217B

12 Mega Pixels

OLYMPUS E-5 DSLR

- RAW & JPEG Still Image Formats
- 3" Dual Axis Swivel HyperCrystal LCD
- 4/3 Full Frame Zuiko-Specific Lenses
- Olympus TruePic V+ Image Processor
- CF & SDHC/SDXC Card Slots
- Splashproof and Dustproof
- 1280 x 720p HD Video Capture
- Mechanical Image Stabilization

Body Only.....#OLE5

12 Mega Pixels

PENTAX K-r DSLR

- 720p HD Video
- 11 Point SAFOX IX Autofocus System
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- 3" LCD monitor with Live View
- Uses Pentax AF Lenses (1.5x factor)
- SD/SDHC Card Slot
- 6 FPS Frame Rate
- ISO 100-25,600

*Body Only.....#PEKR**

12 Mega Pixels

SONY Alpha NEX-5 DSLR

- Extremely Compact HD Imaging System
- Tiltable 3" TFT TruBlack LCD
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- Magnesium-alloy Body • Available in Black or Silver

*with 16mm Lens.....#SONEX5A**
*with 18-55mm Lens.....#SONEX5K**

14 Mega Pixels

SONY Alpha SLT-A55 DSLR

- Translucent Mirror for Fast Focus
- 921K Dot 3" Tiltable LCD screen
- Uses Sony Alpha (compatible with Minolta Lenses (1.5x factor) • Built-In GPS
- Full HD 1080/60i Video
- 3D Sweep Panorama Mode
- Quick AF for Full HD Movie Capture
- 10 FPS Continuous Shooting
- Up to ISO 12800 Sensitivity

*Body Only.....#SOSLTA55**

16 Mega Pixels

▸ OLYMPUS

Flash System

FL-36R Flash	$229.95		
FL-50R Flash	$499.95	RF-11 Ring Flash	$249.95
SRF-11 Ring Flash Set	$559.95		
TF-22 Twin Flash	$449.95		
STF-22 Twin Flash Set	$739.95		

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14-42/3.5-5.6 ED (58ø)	$249.95
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10-17/3.5-4.5 ED IF (77ø)		12-24/4 ED AL IF (77ø)	
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16-50/2.8 ED AL IF SDM (77ø)			
17-70/4.0 AL IF SDM (67ø)			
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60-250/4.0 ED IF SDM (67ø)			

AF Lenses for 35mm & Digital SLRs

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50/2.8 Macro (55ø)	$479.99		
85/1.4 Carl Zeiss (72ø)	$$1,369.99		
100/2.8 Macro (55ø)	$679.99		
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OLYMPUS
50mm f/2 Macro ED Zuiko Digital Lens

- *Designed exclusively for Digital SLRs*
- Ideal for macro photography and also as a portrait lens
- Magnification 1:2
- ED glass element
- Min. focus: 9.45"
- 52mm filter diameter
- Weight: 10.6 oz

PENTAX
50-200mm f/4-5.6 SMCP-DA ED WR AF Digital Lens

- *Designed exclusively for Digital SLRs*
- Ideal for portraiture, sports, and scenery
- Weight resistant
- Quick-Shift Focus System
- Min. focus: 3.6'
- 52mm filter diameter
- Weight: 9 oz

SONY
HVL-F58AM Shoe-Mount Digital Flash

- Zoom Head (24-105mm)
- Bounce & Swivel Head
- Guide No. 190'
- TTL Dedication
- Vari-Power
- High-Speed Sync
- Auto WB Adjustment
- Wireless Ratio Control
- Weight: 15.6 oz

SONY
16-80mm f/3.5-4.5 Carl Zeiss T* DT Digital Lens

- *Designed exclusively for Digital SLRs*
- Ideal for snapshots, portraits, interiors, or outdoor scenery
- 35mm equiv: 24-120mm
- Min. focus: 13.8"
- 62mm filter diameter
- Weight: 15.5 oz

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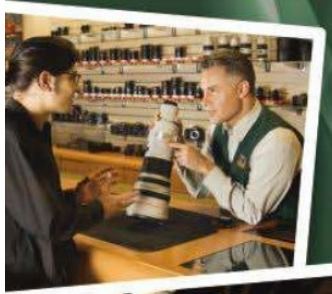

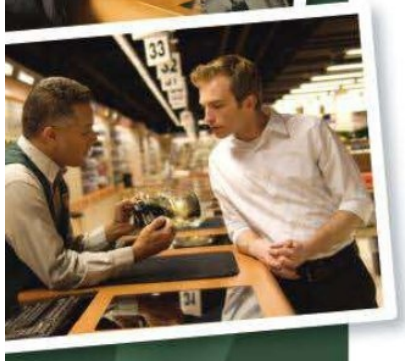

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Canon Digital Rebel T3 DSLR

- 2.7" Clear View LCD with Live View Function
- Uses Canon EF Lenses (1.6x factor)
- SDHC/SDXC Card Slot
- 3 fps Continuous Shooting
- ISO 100-6400
- Full HD Movie Mode
- RAW + JPEG Files
- Basic + Function / Creative Auto
- 63 Zone Dual-Layer System/9 Point AF

Kit with 18-55mm IS.....#CAEDRT3K

12 Mega Pixels

Canon Digital Rebel T3i DSLR

- 3" Clear View Vari-Angle LCD
- Uses Canon EF Lenses (1.6x factor)
- SDHC/SDXC Card Slot
- 3.7 fps Continuous Shooting
- ISO 100-6400
- RAW + JPEG Files
- Full HD Movie Mode with Manual Exposure
- 63 Zone Dual-Layer System/9 Point AF

Body Only.....#CAEDRT3I
Kit with 18-55mm IS.....#CAEDRT3IK

18 Mega Pixels

Canon EOS-60D DSLR

- 1920 x 1080 HD Video Capture
- DIGIC 4 Image Processor
- SD/SDHC/SDXC Card Slot
- Works with all Canon EF & EF-S Lenses • Vari-Angle Clear View 3.0" Flip-Out LCD
- HDMI Output to HDTV
- 5.3 fps Continuous Shooting
- ISO 6400 - Expandable to 12800

Body Only.....#CAE60D
Kit with 18-135mm IS.....#CAE60D18135
Kit with 18-200mm IS.....#CAE60D18200

18 Mega Pixels

Canon EOS-5D Mark II DSLR

- Record HD Video • 1080p Movie Mode
- Full-Frame Sensor • Live View Mode
- 3" High Resolution LCD Screen
- Uses Canon EF Lenses
- CF, MD Card Slot
- Dust and Weather Resistant
- Self-Cleaning Sensor
- 3.9 fps Burst Mode
- 9-point AF Sensor Array
- ISO Range 50-25600

Body Only.....#CAE5D2
Kit with 24-105mm IS.....#CAE5D224105

21 Mega Pixels

Canon EOS-7D DSLR

- Record HD Video • 3" LCD
- Uses Canon EF Lenses
- CF, MD Card Slot
- Dust and Weather Resistant
- Selectable Video Exposure and Frame Rates
- ISO 100-6400 (expandable to 12800) • 8 fps Burst Mode
- 19-Point, All Cross-Type AF System

Body Only.....#CAE7D
Kit with 18-135mm IS.....#CAE7D18135
Kit with 28-135mm IS.....#CAE7D28135

18 Mega Pixels

Canon EOS-1D Mark IV DSLR

- HD Video Recording
- Selectable Video Exposure + Frame Rates
- Self-Cleaning Sensor
- 3" LCD Monitor
- Uses Canon EF Lenses
- SD/SDHC & CF card slots
- 10 fps Burst Mode
- Dust and Weather Resistant
- 45 Point AF System
- High Sensitivity (ISO 102,400)

*Body Only.....#CAE1D4**

16 Mega Pixels

Canon SLR Lenses and Flashes

CALL FOR AVAILABLE REBATES!

EOS Flash System (USA)

	IMP	USA
270EX		
430EX II		
580EX II		
MR-14EX Ringlight		
MT-24EX Twin Flash		

EF-S Lenses for Digital Only
Compatible with the 20D, 30D, 40D, 50D & Digital Rebel only

	IMP	USA
60/2.8 USM Macro (52ø)		
10-22/3.5-4.5 USM (77ø)		
15-85/3.5-5.6 IS USM (72ø)		
17-55/2.8 IS USM (67ø)		
18-55/3.5-5.6 IS (58ø)		
18-135/3.5-5.6 IS (67ø)		
18-200/3.5-5.6 IS (72ø)		
55-250/4.0-5.6 IS USM (58ø)		

EF Lenses

	IMP	USA
15/2.8		
20/2.8 USM (72ø)		
24/2.8 (58ø)		
28/2.8 (52ø)		
28/1.8 USM (58ø)		
35/2 (52ø)		
50/1.8 (52ø)		
50/2.5 Macro (52ø)		
50/1.4 USM (58ø)		
MP-E 65/2.8 1x-5x Macro (58ø)		
85/1.8 USM (58ø)		
100/2 USM (58ø)		
100/2.8 USM Macro (58ø)		
135/2.8 (52ø)		
28-135/3.5-5.6 IS USM (72ø)		
70-300/4-5.6 IS USM (58ø)		
70-300/4.5-5.6 DO IS USM (58ø)		
75-300/4.0-5.6 III (58ø)		
75-300/4.0-5.6 III USM (58ø)		

TS-E MF Lenses

	IMP	USA
17/4.0 "L"		
24/3.5 "L" II		
45/2.8		
90/2.8		

EF "L" Lenses

	IMP	USA
14/2.8 USM II		
24/1.4 II (77ø)		
35/1.4 USM (72ø)		
50/1.2 USM (72ø)		
85/1.2 USM II (72ø)		
100/2.8 IS USM Macro (67ø)		
135/2.0 USM (72ø)		
180/3.5 USM Macro (72ø)		
200/2.8 USM (72ø)		
200/2.0 IS USM (52ø)		
300/4.0 IS USM (77ø)		
300/2.8 IS USM (52ø rear)		
400/5.6 USM (77ø)		
400/2.8 IS (52ø rear)		
500/4 IS USM (52ø rear)		
600/4.0 IS (52ø rear)		
16-35/2.8 USM II (82ø)		
17-40/4.0 USM (77ø)		
24-70/2.8 USM (77ø)		
24-105/4 IS USM (77ø)		
28-300/3.5-5.6 IS USM (77ø)		
70-200/4.0 USM (67ø)		
70-200/4.0 IS USM (77ø)		
70-200/2.8 USM (77ø)		
70-200/2.8 IS II USM (77ø)		
100-400/4.5-5.6 IS USM (77ø)		
1.4x II Teleconverter		
1.4x III Teleconverter		
2x II Teleconverter		
2x III Teleconverter		

USA = Imported and Warranted by Canon USA **IMP =** Imported and Warranted by B&H (not qualified for Canon USA Rebates and Warranties)

Canon 580 EX II
Shoe Mount Flash

- Dust- & water-resistance
- Guide No. 190'
- Metal Hot Shoe
- E-TTL II, E-TTL, TTL & Manual
- Bounce & Swivel Head
- Zoom Head (24-105mm)
- Weight 13.2 oz

Canon 10-22mm f/3.5-4.5 EF-S USM
Digital Lens

- *Designed exclusively for Digital SLRs*
- 35mm equivalent 16-35mm
- Min. Focus 9.5"
- 3 aspherical lens elements
- 3.5-27 f/Stop Range
- 77mm filter diameter
- Weight 13.6 oz

Canon 24-70mm f/2.8 EF "L" USM
Zoom Lens

- Sealed and gasketed against dust and moisture
- Internal Focusing
- UD Element
- Two Aspherical Elements
- 2.8-22 f/Stop Range
- Focus 1.25' to Infinity
- 77mm filter diameter
- Weight 33.6 oz

Canon 70-200mm f/2.8 EF "L" IS II USM
Telephoto-Zoom Lens

- Improved Optical Image Stabilization provides up to 4 stops correction
- Min. Focus 3.9'
- Dust- and moisture-resistant
- 77mm filter diameter
- 52.56 oz

Nikon D3100 DSLR

- HD 1080p Video w/ Sound & Autofocus
- 3" LCD • Live View
- Uses Nikon AF Lenses (1.5x factor)
- SD/SDHC Card Slot
- 11-point Autofocus
- 3 Frames per Second Shooting
- ISO 100 to 3200 (Expand to 12800-Hi2)
- Self Cleaning Sensor
- Nikon Inc. limited warranty included

Kit with 18-55mm VR ..... #NID31001855

14 Mega Pixels

Nikon D5100 DSLR

- 1080p HD Movies with Full Time Autofocus
- 3.0" Vari-angle LCD
- Uses Nikon AF Lenses (1.5x factor)
- SD/SDHC Card Slot
- In-Camera Special Effects Mode
- In-Camera HDR (High Dynamic Range)
- Fast 11-Point Autofocus System
- ISO Sensitivity 100-6400
- Nikon Inc. limited warranty included

Body Only ..... #NID5100
Kit with 18-55mm VR ..... #NID51001855

16 Mega Pixels

Nikon D90 DSLR

- D-Movie mode record 720p HD movie clips
- 3" LCD Monitor • Active D-Lighting
- Uses Nikon AF Lenses (1.5x factor)
- SD/SDHC Card Slot
- In-Camera Image Editing
- Scene Recognition System
- GPS geo-tagging • ISO 100-3200
- Self-Cleaning Sensor • 4.5 fps Burst
- Nikon Inc. limited warranty included

Body Only ..... #NID90
Kit with 18-105mm VR ..... #NID9018105

12 Mega Pixels

Nikon D7000 DSLR

- EXPEED 2 Image Processor
- 1080p HD Video Capture
- RAW + JPEG Still Image Capture
- 3" LCD Monitor
- Accepts Nikon AF Lenses (1.5x factor)
- Twin SD/SDHC/SDXC Card Slots
- 39-point AF System
- RGB 3D Matrix Metering System
- i-TTL Flash + Speedlight Compatibility
- Nikon Inc. limited warranty included

Body Only ..... #NID7000

16 Mega Pixels

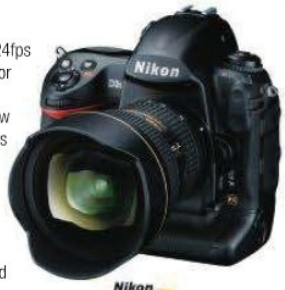
Nikon D700 DSLR

- Self Cleaning Sensor • 5 fps Burst
- FX-format CMOS (full frame)
- 3" VGA LCD Monitor • Live View
- 51-point AF System
- Uses Nikon AF Lenses
- CompactFlash Card Slot
- Dust and Water Resistant
- Active D-Lighting Mode
- HDMI Video Out • ISO 6400
- Nikon Inc. limited warranty included

Body Only ..... #NID700
Kit with 24-120mm VR ..... #NID70024120

12 Mega Pixels

Nikon D3s DSLR



- RAW/JPEGs & 720p HD Video @ 24fps
- FX-format (full-frame) CMOS Sensor
- In-Camera RAW Processing
- 3" 920,000-Dot LCD with Live View
- Compatible with Most Nikkor Optics
- Built Tough, Fully Weathersealed
- ISO Sensitivity up to 102,400
- Buffers Up to 48 RAW or 130 large JPEGs
- Dual CF Card Slots
- Nikon Inc. limited warranty included

Body Only ..... #NID3S

12 Mega Pixels

Nikon SLR Lenses and Flashes

Call for Available Rebates

	IMP	USA
AF Flashes		
SB-400		
SB-700		
SB-900		
R1 Wireless Twin Flash		
R1C1 Wireless Twin Flash System		
DX ED-IF Lenses for Digital Only		
10.5/2.8 Fish-Eye		
35/1.8 G AF-S (52ø)		
85/3.5 G ED VR Micro (52ø)		
10-24/3.5-4.5 G AF-S (77ø)		
12-24/4 G AF-S (77ø)		
16-85/3.5-5.6 G AF-S VR (67ø)		
17-55/2.8 G AF-S (77ø)		
18-55/3.5-5.6 G AF-S II (52ø)		
18-55/3.5-5.6 G AF-S VR (52ø)		
18-105/3.5-5.6 G AF-S VR (67ø)		
18-200/3.5-5.6 G AF-S VR II (72ø)		
55-200/4-5.6 G AF-S (67ø)		
55-200/4-5.6 G AF-S VR (67ø)		
55-300/4.5-5.6 G AF-S VR (58ø)		

	IMP	USA
D-Type AF Lenses		
14/2.8 D ED		
16/2.8 D (39ø) with Hood		
20/2.8 D (62ø)		
24/2.8 D (52ø)		
24/1.4 G AF-S ED (77ø)		
24/3.5 D ED PC-E (77ø)		
28/2.8 D (52ø)		
35/2.0 D (52ø)		
35/1.4 G AF-S ED (67ø)		
45/2.8 D ED PC-E Micro (77ø)		
50/1.8 D (52ø)		
50/1.4 D (52ø)		
50/1.4 G AF-S (58ø)		
60/2.8 D Micro (62ø) (1:1)		
60/2.8 G AF-S ED Micro (62ø)		
85/1.8 D (62ø) with Hood		
85/1.4 D IF (77ø)		
85/1.4 G AF-S (77ø)		
85/2.8 PC-E Micro (77ø)		
105/2.8 G AF-S ED-IF VR Micro (62ø)		
105/2.0 DC D with Hood (72ø)		
180/2.8 D ED-IF (72ø)		
200/4 D ED-IF Micro w/Case (62ø)		

	IMP	USA
D-Type AF Lenses		
200/2 G AF-S ED-IF VR (52ø)		
300/4.0 D AF-S ED-IF (77ø)		
300/2.8 G AF-S VR (52ø-R)		
400/2.8 G AF-S VR ED (52ø)		
500/4.0 G AF-S VR ED (52ø)		
600/4.0 G AF-S VR ED (52ø)		
14-24/2.8 G AF-S ED-IF		
16-35/4.0 G AF-S ED VR (77ø)		
17-35/2.8 D AF-S ED-IF (77ø)		
24-70/2.8 G AF-S ED-IF (77ø)		
24-85/2.8-4.0 D IF (72ø)		
24-120/4.0 G AF-S ED VR (77ø)		
28-300/3.5-5.6 G AF-S ED VR (77ø)		
70-200/2.8 G AF-S ED-IF VR II (77ø)		
70-300/4.0-5.6 G (62ø)		
70-300/4.5-5.6 G-AFS VR (67ø)		
80-200/2.8 D with Collar (77ø)		
80-400/4.5-5.6 D VR (77ø)		
200-400/4 G AF-S ED VR II (52ø)		
TC-14E II (1.4x) Teleconverter		
TC-17E II (1.7x) Teleconverter		
TC-20E III (2x) Teleconverter		

USA = Imported and Warranted by Nikon USA (AF lenses include 1 year warranty plus 4 years extended service coverage)

IMP = Imported and Warranted by B&H (not qualified for Nikon USA Rebates and Warranties)

Nikon 24-70mm f/2.8 G AF-S ED-IF Zoom Lens

- Optimized for edge-to-edge sharpness on both the Nikon FX (full-frame) and DX-format image sensors
- Rugged construction, dust and moisture resistance
- Minimum focus 1.2'
- 77mm filter diameter
- Weight 32 oz

Nikon 18-200/3.5-5.6 DX G VR II AF-S ED-IF Digital Lens

- *Designed exclusively for Digital SLRs*
- 35mm equiv. 27-300mm
- **VR II** Vibration Reduction
- SWM (Silent Wave Motor)
- 3.5-22 f/Stop Range
- Focus 1.6' to Infinity
- 72mm filter diameter
- Weight 19.8 oz

Nikon 70-200/2.8 G AF-S ED-IF VR II Telephoto-Zoom Lens

- **VR II** Vibration Reduction
- 3.5-22 f/Stop Range
- SWM (Silent Wave Motor)
- Close Focusing to 4.6'
- 77mm filter diameter
- Weight 3.2 lbs

Nikon SB-900 Speedlight i-TTL Shoe Mount Flash

- Guide No. 131'
- Recycling Time 4.5 Secs
- Bounce & Swivel Head
- Zoom Head (17-200mm)
- Stroboscopic Effect
- AF-Assist Illuminator
- Safety lock on flash shoe
- Weight 14.6 oz

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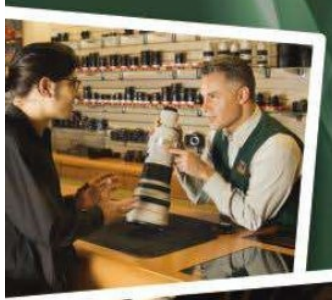

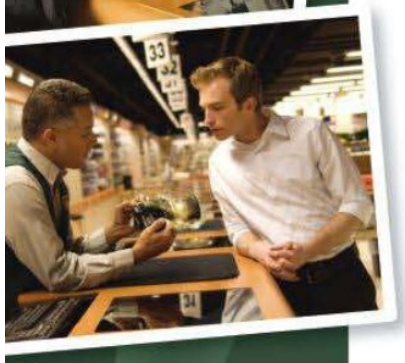

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Di – for both digital & film SLR cameras • **Di-II** – for Digital SLRs Only

C = Canon N = Nikon P = Pentax SM = Sony/Minolta ** Price After Rebate Rebates Expire 4-30-11

		SKU #	Available for	Rebate	Price
Di-II	60/2.0 LD IF Macro (55ø)	#TA602DI*	C, N, SM	$100	$424.00**
Di	90/2.8 Macro (55ø)	#TA9028M*	C, N, P, SM	$50	$449.00**
Di	180/3.5 LD IF Macro (72ø)	#TA18035*	C, N, SM	$50	$689.00**
Di-II	10-24/3.5-4.5 (77ø)	#TA102435*	C, N, P, SM	$50	$449.00**
Di-II	17-50/2.8 XR LD IF Aspherical (67ø)	#TA175028*	C, N, P, SM	$25	$474.00**
Di-II	17-50/2.8 XR VC LD IF Asph. (67ø)	#TA175028*Q	C, N	$50	$599.00**
Di-II	18-200/3.5-6.3 (62ø)	#TA1820035*	C, N, P, SM	$60	$239.00**
Di-II	18-270/3.5-6.3 VC (72º)	#TA1827035*	C, N	$150	$479.00**
Di-II	18-270/3.5-6.3 VC PZD (62ø)	#TA18270*	C, N	—	$649.00
Di	28-75/2.8 XR (67ø)	#TA287528*	C, N, P, SM	$25	$474.00**
	28-80/3.5-5.6 (58ø)	#TA288035*	C, N, P, SM	—	$89.00
Di	28-300/3.5-6.3 XR LD (62ø)	#TA2830035XD*	C, N, P, SM	—	$419.00
Di	28-300/3.5-6.3 XR VC (62ø)	#TA2830035*	C, N	—	$629.00
Di-II	55-200/4-5.6 LD Macro (52ø)	#TA552004*	C, N, SM	—	$199.00
Di	70-200/2.8 LD IF Macro (77ø)	#TA7020028M*	C, N, P, SM	—	$769.00
Di	70-300/4-5.6 VC USD	#TA70300*	C, N, SM	$50	$399.00**
	75-300/4.0-5.6 LD (62ø)	#TA753004*	C, N, P, SM	—	$164.00
Di	200-500/5-6.3 LD IF (86Cø)	#TA2005005*	C, N, SM	—	$949.00

Tokina AF LENSES

DX – for Digital SLRs Only **FX** – Designed for full frame DSLRs

** Also Available for Sony Alpha DSLR

		Canon EOS	Nikon AF	Price
DX	35/2.8 Pro Macro (55ø)	#T03528PDXC	#T03528PDXN	$299.00
	100/2.8 Pro D Macro (52ø)	#T010028PCAF	#T010028PNAF	$449.00
DX	10-17/3.5-4.5 ATX Fisheye	#T0101735CAF	#T0101735NAF	$599.95
DX	11-16/2.8 Pro (77ø) **	#T0111628PDXC	#T0111628PDXN	$659.95
DX	12-24/4.0 Pro II (77ø)	#T012244DXC	#T012244DXN	$549.95
FX	16-28/2.8 Pro (77ø)	#T0162828FXC	#T0162828FXN	$849.00
DX	16.5-135/3.5-5.6 (67ø)	#T016.513535C	#T016.513535N	CALL

FLASHES

Metz

28 AF-3 TTL Digital Shoe Mount Flash	$108.00
28 CS-2 Digital Slave Shoe Mount Flash	$126.00
50 AF-1 TTL Shoe Mount Flash f/Canon or Nikon	$230.00
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58 AF-2 TTL Shoe Mount Flash f/Canon or Nikon	$400.00
45 CL-4 TTL Handle Mount Flash Kit**	$680.00
76 MZ-5 TTL Handle Mount Flash**	$1,026.00

** with battery and charger

Quantum

Q-flash TRIO	$875.00
Q-flash T5D-R	$706.00
Q-flash T5D-R with Turbo Battery	$1,089.95
Q-flash T5D-R with Turbo Compact Battery	$1,129.95

Batteries

Battery 1 Compact			$118.00
Battery 1	$224.00	Turbo Battery	$408.00
Turbo Blade	$466.00	Turbo 3	$624.00

SUNPAK

E-Flash Flat Panel Kit #SUFP38	$58.95
018ST fits most Digital Cameras	$29.95
RD-2000 Shoe Mount Flash	$59.95
PZ-4000 AF TTL Shoe Mount Flash	$109.95
PZ-40x II AF TTL Shoe Mount Blk f/Canon, Nikon	$131.95
PZ-42x II AF TTL Shoe Mount for Canon, Nikon	$139.99
622 Super Pro TTL Handle Mount Flash	$196.95
622 Super Pro TTL Kit with Wide Angle Head	$249.95

Vivitar

285HV Professional Auto	$89.95
Pearstone SB-4 AC Adapter f/285HV #PESB4	$14.95

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H – HSM Model with Canon, Nikon, Sigma
R – Rear Slip-in Gelatin Filter Slot

		Canon	Nikon	Olympus	Pentax	Sigma	Sony/Minolta	Price
DC	4.5mm f/2.8 EX Circular Fisheye HSM R	#SI4528EXDCC	#SI4528EXDCN	—	#SI4528EXDCP	#SI4528EXDCSI	#SI4528EXDSO	$899.00
DG	8/3.5 EX Circular Fish-Eye R	#SI835CA	#SI835NA	—	—	#SI835SI	—	$899.00
DC	10mm f/2.8 EX Fisheye HSM R	#SI1028EXDCC	#SI1028EXDCN	—	#SI1028EXDCP	#SI1028EXDCSI	#SI1028EXDCSO	$649.00
DG	15/2.8 EX Diagonal Fish-Eye R	#SI1528DGCAF	#SI1528DGNAF	—	#SI1528DGPAF	#SI1528DGSA	#SI1528DGMAF	$609.00
DG	20/1.8 EX DF RF Aspherical (82ø)	#SI2018CAF	#SI2018NAF	—	#SI2018PAF	#SI2018SA	#SI2018MAF	$629.00
DG	24/1.8 EX DF Aspherical Macro (77ø)	#SI2418MCAF	#SI2418MNAF	#SI2418MOAF	#SI2418MPAF	#SI2418MSA	#SI2418MMAF	$549.00
DG	28/1.8 EX DF Aspherical Macro (77ø)	#SI2818MCAF	#SI2818MNAF	—	#SI2818MPAF	#SI2818MSA	#SI2818MMAF	$449.00
DC	30mm f/1.4 EX HSM (62ø)	#SI3014DCCAF	#SI3014DCNAF	#SI3014DCOAF	#SI3014DCPAF	#SI3014DCSA	#SI3014DCMAF	$489.00
DG	50mm f/1.4 EX (77ø) H	#SI5014C	#SI5014N	#SI5014OL	#SI5014PE	#SI5014SI	#SI5014SOM	$499.00
DG	50/2.8 EX Macro (55ø)	#SI5028MDGCAF	#SI5028MDGNAF	—	#SI5028MDGPAF	#SI5028MDGSA	#SI5028MDGMAF	$369.00
DG	70/2.8 EX Macro (62ø)	#SI7028MDGCA	#SI7028MDGNA	—	#SI7028MDGPA	#SI7028MDGSA	#SI7028MDGSAQ	$499.00
DG	85/1.4 EX HSM (77ø)	#SI8514C	#SI8514N	—	#SI8514P	#SI8514SI	#SI8514S	$969.00
DG	105/2.8 EX Macro (58ø)	#SI10528MDGCA	#SI10528MDGNA	#SI10528MDGOA	—	#SI10528MDGSA	#SI10528MDGMA	$479.00
DG	150/2.8 EX APO Macro HSM (72ø)	#SI15028AMDGC	#SI15028AMDGN	#SI15028AMDGO	—	#SI15028AMDGS	—	$729.00
DG	300/2.8 APO EX HSM	#SI30028DGCAF	#SI30028DGNAF	—	#SI30028DGPAF	#SI30028DGSA	#SI30028DGMAF	$3,399.00
DC	8-16/4.5-5.6 HSM	#SI8164556CA	#SI8164556NI	—	#SI8164556PE	—	#SI8164556SO	$699.00
DC	10-20/4-5.6 EX HSM (77ø)	#SI102045DCAF	#SI102045DNAF	#SI102045DOLP	#SI102045DPAF	#SI102045DSA	#SI102045DMAF	$479.00
DC	10-20/3.5 EX HSM (82ø)	#SI102035C	#SI102035SN	—	#SI102035P	#SI102035SG	#SI102035S	$649.00
DG	12-24/4.5-5.6 EX RH	#SI122445CAF	#SI122445NAF	—	#SI122445PAF	#SI122445SA	#SI122445MAF	$899.00
DC	17-50/2.8 EX OS (77ø)	#SI175028CA	#SI175028NI	—	#SI175028PE	—	#SI175028SO	$669.00
DC	17-70/2.8-4.0 OS Macro HSM (72ø)	#SI177028DCC	#SI177028DCNQ	—	#SI177028DCP	#SI177028DCSI	#SI177028DCSM	$469.00
DC	18-50/2.8-4.5 OS (67ø)	#SI185028DOC	#SI185028DON	—	#SI185028DOP	#SI185028DOSG	#SI185028DOS	$199.00
DC	18-125/3.8-5.6 OS (Optical Stabilizer) (67ø) H	#SI18125350SC	#SI18125350SN	—	#SI18125350SP	#SI18125350SI	#SI18125350SS	$339.00
DC	18-200/3.5-6.3 IF Aspherical (62ø)	#SI1820035CAF	#SI182003563N	—	#SI1820035PAF	#SI1820035SA	#SI1820035MAF	$279.00
DC	18-200/3.5-6.3 OS (Optical Stabilizer) (72ø)	#SI1820035C	#SI1820035N	—	—	#SI1820035S	—	$399.00
DC	18-250/3.5-6.3 OS HSM (72ø)	#SI1825035C	#SI1825035N	—	#SI1825035CP	#SI1825035S	#SI1825035CSN	$479.00
DG	24-70/2.8 EX IF HSM (82ø)	#SI247028C	#SI247028NF	—	#SI247028PS	#SI247028S	#SI247028SM	$899.00
DC	50-200/4-5.6 OS HSM (55ø)	#SI5020045DOC	#SI5020045DON	—	#SI5020045DOP	#SI5020045DSG	#SI5020045DOS	$159.00
DG	50-500/4.5-6.3 APO OS HSM (95ø)	#SI505004563C	#SI505004563N	—	#SI505004563P	#SI505004563SA	#SI505004563SM	$1,659.00
DG	70-200/2.8 EX Macro II HSM (77ø)	#SI7020028C	#SI7020028N	—	#SI7020028PSA	#SI7020028S	#SI7020028SO	$949.00
DG	70-200/2.8 EX OS HSM (77ø)	#SI7020028CQ	#SI7020028NI	—	#SI7020028P	—	#SI7020028SOQ	$1,399.00
DG	70-300/4-5.6 DL Macro Super II (58ø)	#SI703004SCAF	#SI70300456N	—	#SI703004PAF	#SI703004SA	#SI703004MAF	$169.00
DG	70-300/4-5.6 APO Macro Super II (58ø)	#SI703004DGCA	#SI70300456AN	—	#SI703004DGPA	#SI703004DGSA	#SI703004DGMA	$239.00
DG	70-300/4-5.6 OS (62ø)	#SI7030045C	#SI7030045N	—	#SI7030045P	#SI7030045S	#SI7030045SM	$359.00
DG	150-500/5-6.3 APO OS HSM	#SI150500C	#SI150500N	—	#SI150500P	#SI150500S	#SI150500M	$1,069.00
DG	300-800/5.6 APO EX HSM	#SI300800DGCA	#SI300800DGNA	#SI300800DGOA	—	#SI300800DGSA	—	$7,999.00
DG	1.4x EX APO Tele-Converter	#SI1.4XDGCAF	#SI1.4XDGNAF	—	#SI1.4XDGPAF	#SI1.4XDGSA	#SI1.4XDGMAF	$249.00
DG	2x EX APO Tele-Converter	#SI2XDGCAF	#SI2XDGNAF	—	#SI2XDGPAF	#SI2XDGSA	#SI2XDGMAF	$299.00
DG	EF-610 ST	#SIEF610STC	#SIEF610STN	—	#SIEF610STP	#SIEF610STSI	#SIEF610STS	$165.00
DG	EF-610 Super Flash	#SIEF610C	#SIEF610N	—	#SIEF610P	#SIEF610SI	#SIEF610S	$255.00
DG	EM-140 TTL Ringlight	#SIEM140DGC	#SIEM140DGN	—	#SIEM140DGP	#SIEM140DGS	#SIEM140DGM	$379.00

SIGMA
18-200mm f/3.5-6.3 DC OS Digital Lens

- *Designed exclusively for Digital SLRs*
- Focus 1.5' to Infinity
- Mag. ratio of 1:3.9
- 72mm filter diameter
- Weight 21.6 oz

SIGMA
17-50mm f/2.8 EX DC OS Digital Lens

- *Designed exclusively for Digital SLRs*
- Minimum focus: 11"
- Optical Image Stabilization (OS)
- 77mm filter diameter
- Weight: 19.9 oz

TAMRON
60mm f/2.0 LD IF Macro Di-II Digital Lens

- *Designed exclusively for Digital SLRs*
- Minimum Focus 9.1'
- 55mm filter diameter
- Weight 14.1 oz

$100 Rebate

Tokina
11-16mm f/2.8 Pro DX AT-X Fisheye Digital Lens

- *Designed exclusively for Digital SLRs*
- WR (Water Repellent) coating
- Minimum Focus 1'
- Magnification ratio 1:11.6
- Weight 1.2 lb

BAGS & CASES

DPS 3N1 Sling/Backpacks

3N1 bags provides fast equipment access and ultimate freedom allowing 3 carrying options in one while morphing from sling to backpack and back again fast and easy.

	10 Small	20 Med.	30 Large
SKU #	#KA31SBS	#KA31SBM	#KA31SBL
Color	Black	Black	Black
HOLDS SLRs	1	1	1
HOLDS Lens/Flash	2	4	6
HOLDS Accessories	Yes	Yes	Yes
Price	**$99.99**	**$109.99**	**$149.99**

Lowepro Fastpack Backpacks

Protects your equipment and provides storage for accessories. Side-entry compartments let you quickly access gear and accessories, even while you're on the move.

	200	250	350
SKU #	#LOFP200*	#LOFP250*	#LOFP350*
Color	Black, Blue, Red		
HOLDS SLRs	1	1	1
HOLDS Lens/Flash	3	4	4
HOLDS Laptop	No	15.4"	17.4"
Price	**$84.95**	**$99.95**	**$124.95**

tamrac Aero Backpacks

Speed Pack's Dual Entry System allows camera access via side door or front panel. Weatherproof exterior and foam padded interior compartments for a custom equipment fit.

	Speed Pack 75	Speed Pack 85
SKU #	#TA3375*	#TA3385*
Color	Black, Rust	
HOLDS SLRs	1	1
HOLDS Lens/Flash	3	4
HOLDS Laptop	No	17"
Price	**$109.99**	**$139.99**

TRIPODS

GITZO Explorer Series

Six Layer, pultrusion (spun), 100% carbon fiber tubes, "G Lock" leg locks. Legs and center column. Can belocked at a wide range of angles making it the perfect wilderness field tripod. Requires Head.

	GT2531EX	GT2541EX
SKU #	#GIGT2531EX	#GIGT2541EX
Load Capacity	26.4 lbs	26.5 lbs
Max. Height	66.9"	64.6"
Folded Length	25.2"	21.3"
Weight	4.1 lbs	4.1 lbs
Price	**$674.90**	**$724.90**

Manfrotto 190X Series

Improved castings for reduced weight without compromising strength and stability. XB feature slow angle adapter, XProB features vertical/horizontal quick flip center column. Requires Head.

	190XDB	190XB	190XPROB
SKU #	#MA190XDB	#MA190XB	#MA190XPROB
Load Capacity	11 lbs	11 lbs	11 lbs
Max. Height	57.5"	57.1"	57.5"
Folded Length	21"	20.9"	22.4"
Weight	3.5 lbs	4 lbs	4 lbs
Price	**$104.90**	**$139.90**	**$149.90**

Manfrotto 055X Series

Similar in design and features to the 190X series but with increased operating height & max load capacity. 055XB features low angle adapter, 055XproB features vertical/horizontal quick flip center column. Requires Head.

	055XDB	055XB	055XPROB
SKU #	#MA055XDB	#MA055XB	#MA055XPROB
Load Capacity	15.4 lbs	15.4 lbs	15.4 lbs
Max. Height	70"	70"	70.3"
Folded Length	24"	24"	25.7"
Weight	4.6 lbs	5 lbs	5.3 lbs
Price	**$149.90**	**$174.90**	**$179.90**

FILTERS

SINGH-RAY Filters in stock

HOYA

B&H SPECIAL! Buy 3 or more Hoya Filters & Get 10% Off.

	52mm	58mm	67mm	72mm	77mm
UV, Skylight (1B)	$13.35	$19.95	$32.85	$34.35	$49.35
UV, Skylight (1B) HMC	$20.85	$23.85	$35.85	$43.35	$52.35
UV, Skylight (1B) Super HMC	$35.85	$44.85	$55.35	$65.85	$74.85
Linear Polarizer	$32.85	$35.85	$38.85	$44.85	$55.35
Circular Polarizer	$38.85	$43.35	$62.85	$74.85	$88.35
Circular Polarizer HMC	$77.85	$88.35	$103.35	$146.85	$179.85
"Moose" Warm Circular Polarizer	$55.35	$64.35	$92.85	$115.35	$137.85
K2 Yel, X0 Yel/Grn, Grn X1, Or G, Red 25A HMC	$25.35	$28.35	$41.85	$49.35	$61.35
Close Up Set (+1, +2, +4)	$50.85	$64.35	$77.85	$95.85	$104.85
Close-Up Set HMC (+1, +2, +4)	$65.85	$74.85	$98.85	—	—
Intensifier – Blue, Green Field, Enhancement (Red)	$44.85	$55.35	$70.35	$86.85	$104.85
Neutral Density 2x, 4x, 8x HMC	$25.35	$28.35	$41.85	$49.35	$61.35
Star 6, Star 8	$25.35	$28.35	$43.25	$49.35	$58.35

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Made exclusively with glass from Schott (Zeiss) the world's finest optical glass supplier.

	55mm	58mm	67mm	72mm	77mm
Skylight (1B), UV	$39.99	$41.99	$62.99	$77.99	$89.99
Skylight (1B), UV SH-PMC	$72.99	$78.99	$103.99	$131.99	$157.99
Circular Polarizer, Slim Circular Polarizer	$115.99	$121.99	$151.99	$180.99	$195.99
Circular Polarizer SH-PMC, Slim Circ. Pol. SH-PMC	$161.99	$171.99	$214.99	$242.99	$275.99
#5, #8, #11, #13, #15, #22, 81A, 81B, 81C	$49.99	$51.99	$78.99	$96.99	$108.99
Digital Filter	$176.99	$180.99	$222.99	$261.99	$301.99

B+W

B&H SPECIAL! Buy 3 or more B+W Filters & Get 5% Off.

	55mm	58mm	67mm	72mm	77mm
UV	$21.00	$23.00	$33.50	$42.00	$47.50
UV Multi-Coated	$38.50	$38.50	$52.00	$64.50	$88.00
Circular Polarizer	$63.00	$65.00	$81.50	$93.50	$105.00
Circular Polarizer Multi-Coated	$90.00	$93.50	$117.00	$134.50	$160.50
81A, B, KR3, 6, 12, 15	$26.50	$26.50	$36.00	$42.00	$49.00
KB1.5, 3, 6, 12, 15, 20	$28.50	$28.50	$35.00	$40.50	$47.50
#021, 023, 041, 060, 061, 090	$24.50	$24.50	$36.00	$42.00	$49.00
Graduated (N.D. & Colors)	$46.50	$47.50	$58.50	$68.00	$82.50
ND .9, 1.8, 3.0, 4.0, 6.0	$42.00	$42.00	$67.50	$84.00	$94.50
Close-Up Lenses 0.25 – 5.0	$24.50	$24.50	$36.00	$42.00	$49.00

TIFFEN

Ten -Year Warranty Made in USA — Multicoated Filter Technology

Digital Essentials Kits In Stock — *DIGITAL HT FILTERS*

	52mm	58mm	62mm	72mm	77mm
812 Warming	$64.95	$74.95	$99.95	$109.95	$129.95
Grad ND 0.6	$74.95	$84.95	$109.95	$119.95	$139.95
Circular Polarizer	$109.95	$129.95	$159.95	$199.95	$219.95
Ultra Clear	$49.95	$59.95	$69.95	$74.95	$79.95
Haze 86	$54.95	$64.95	$74.95	$84.95	$99.95
ND 1.2	$64.95	$74.95	$99.95	$109.95	$129.95
ND 0.6	$64.95	$74.95	$99.95	$109.95	$129.95
Soft FX3	$74.95	$84.95	$109.95	$119.95	$139.95
Star 4 pt 2	$64.95	$74.95	$99.95	$109.95	$129.95

FILM – B&W AND COLOR

COLOR PRINT FILM

	Kodak Gold GA 100	Kodak Gold GB 200	Kodak Gold Max GC 400	FUJIFILM Superia CA 200	FUJIFILM Superia CH 400
135-24	2.19	2.49	1.99	1.99	1.99
135-36	—	2.99	2.99	—	—

IMP Imported from Europe

USA Manufactured in USA for Domestic Distribution

	Kodak Portra 160	Portra 160NC	Portra 160VC	Portra 400	Portra 400VC	Portra 800	Ektar 100	FUJIFILM Pro 160S	Pro 400H
135-36	5.99	5.49	5.79	5.99	5.99	9.50	4.35	4.99	6.89
120 Roll	4.79	3.69	3.99	4.89	4.99	5.99	3.69	—	5.09
220 PP (5)	53.95	48.70	—	49.95	—	—	—	7.95	—

PROCESSING MAILERS

Fuji Slide Processing

36 Exposures (35mm) 8.49

ADI Processing

	35mm	120	220
Slide E6	9.49	9.49	18.95
Print C41	13.49	15.49	30.95
B&W	16.75	16.75	—

COLOR SLIDE FILM

	Kodak Ektachrome Professional E Series 100 VS	Ektachrome Professional E Series 100 G	Ektachrome Professional E Series 200
135-36	6.99	7.50	9.95
120 Roll	5.25	5.99	—
220 PP (5)	—	—	—

	FUJIFILM Velvia RVP Pro 50	Velvia RVP 100F	Fujichrome Professional Astia RAP100F	Provia RDP100F	Provia RXP III 400X
135-36	6.95	5.99	—	6.69	9.89
120 Roll	5.99	4.59	—	3.79	5.95
220 Roll	—	—	10.99	—	—

BLACK & WHITE PRINT FILM

	Kodak Plus-X 125	Tri-X 400	TMX 100	TMY 400	TMZ 3200	BW 400 CN	ILFORD Pan F+ 50	FP4+ 125	HP5+ 400	Delta Pro 100	Delta Pro 400	Delta Pro 3200	FUJIFILM XP-2 Super 400	Infrared SFX 200	Acros 100	Neopan 400	AGFA SLIDE Scala 200
135-36	5.99	3.45	4.25	3.99	6.95	4.75	5.69	5.35	3.99	5.31	5.52	7.07	5.64	6.79	3.99	3.99	7.99
120 Roll	—	3.75	3.95	3.59	—	—	4.21	3.69	3.58	3.90	3.99	4.69	4.49	6.95	3.54	—	—

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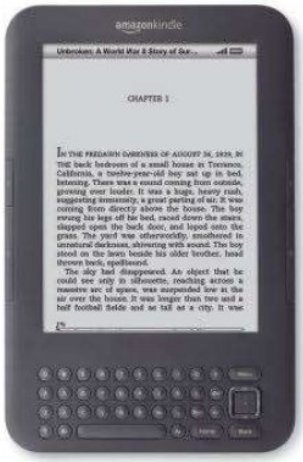

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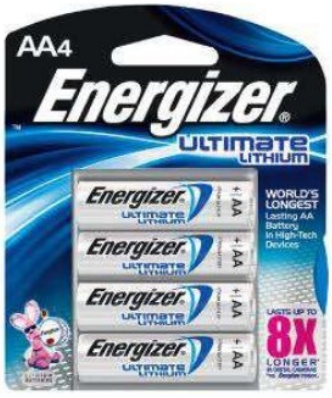

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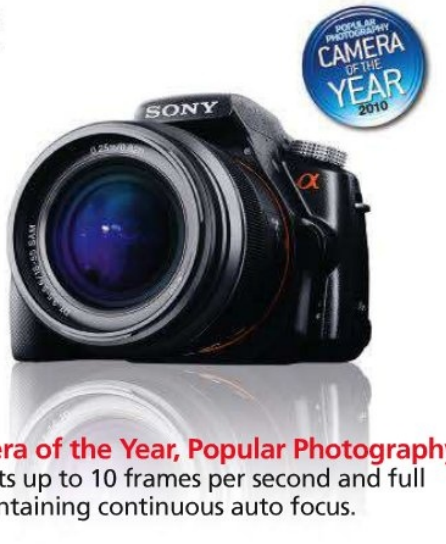

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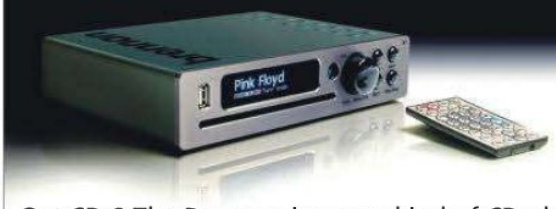

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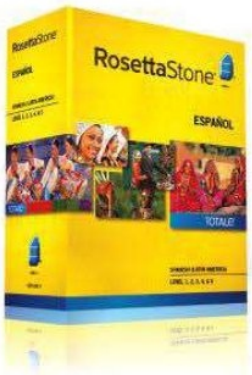

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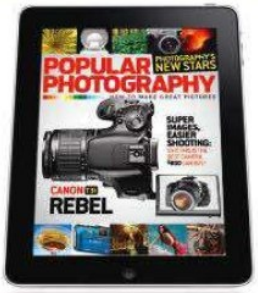

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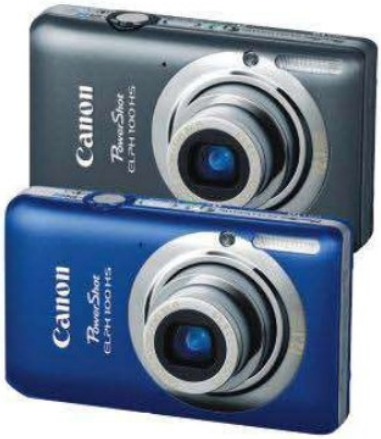

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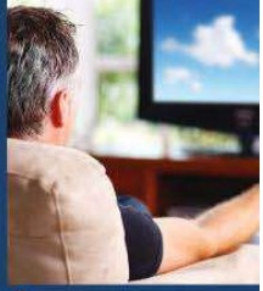
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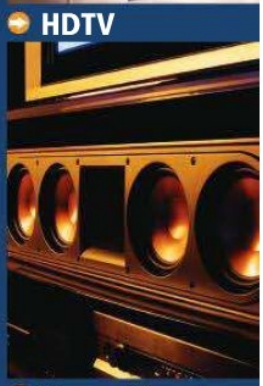
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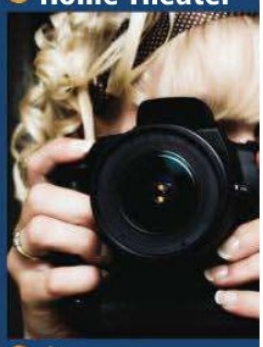
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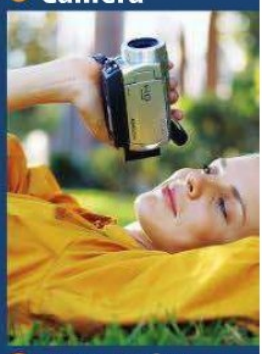
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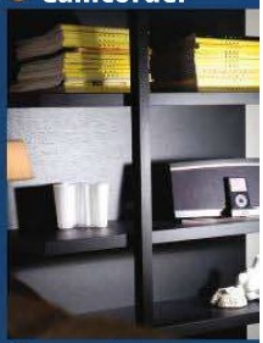
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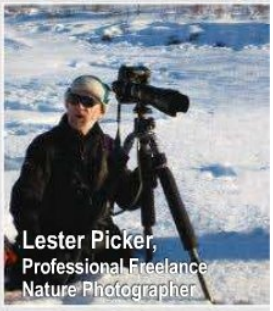

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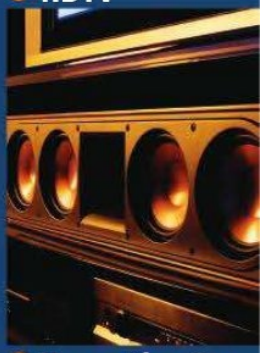

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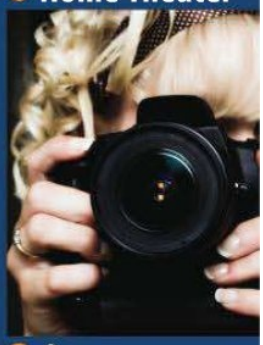

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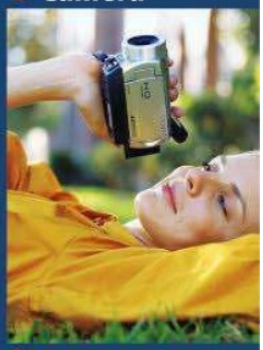

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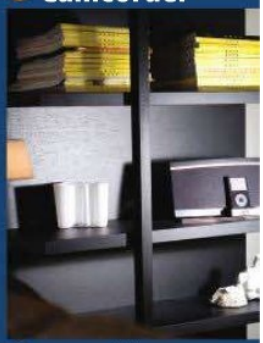

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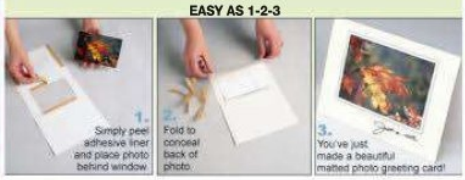
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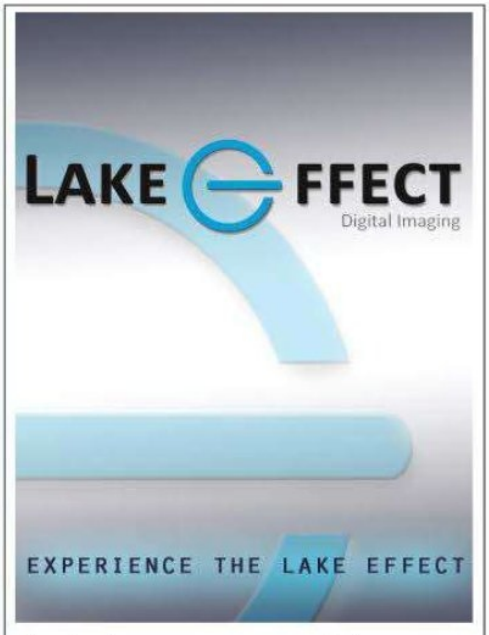

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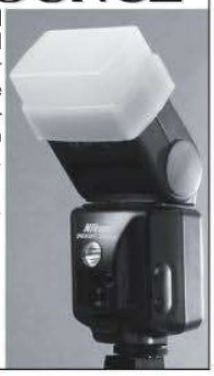

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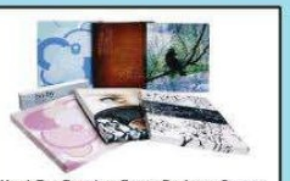

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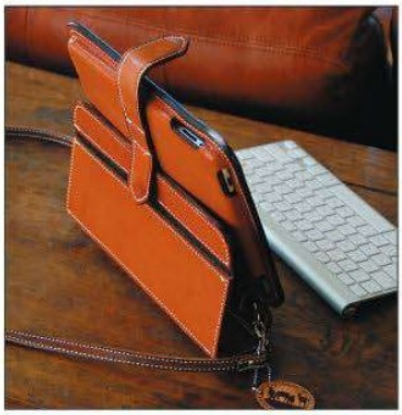

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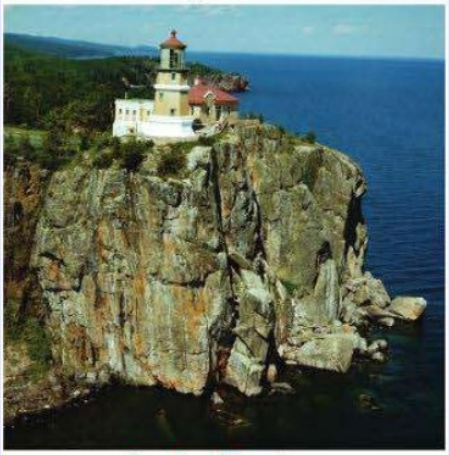

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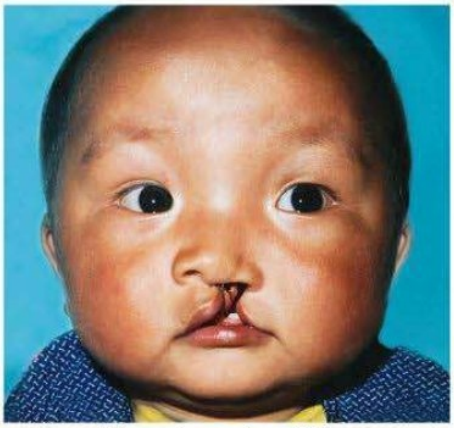
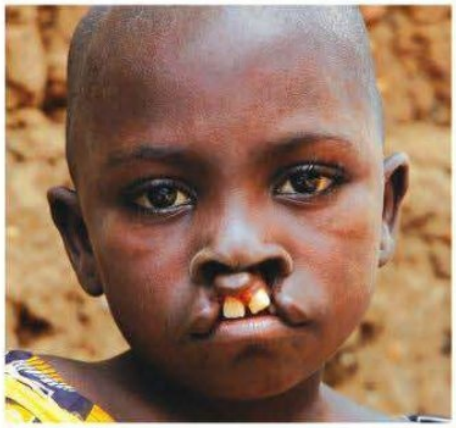


Ming, 6 months, China

Shiva, 1 year, India

Mot, 13 years, Cambodia

Durgap, 5 years, India



Funmi, 8 years, Nigeria

Salazar, 5 years, Philippines

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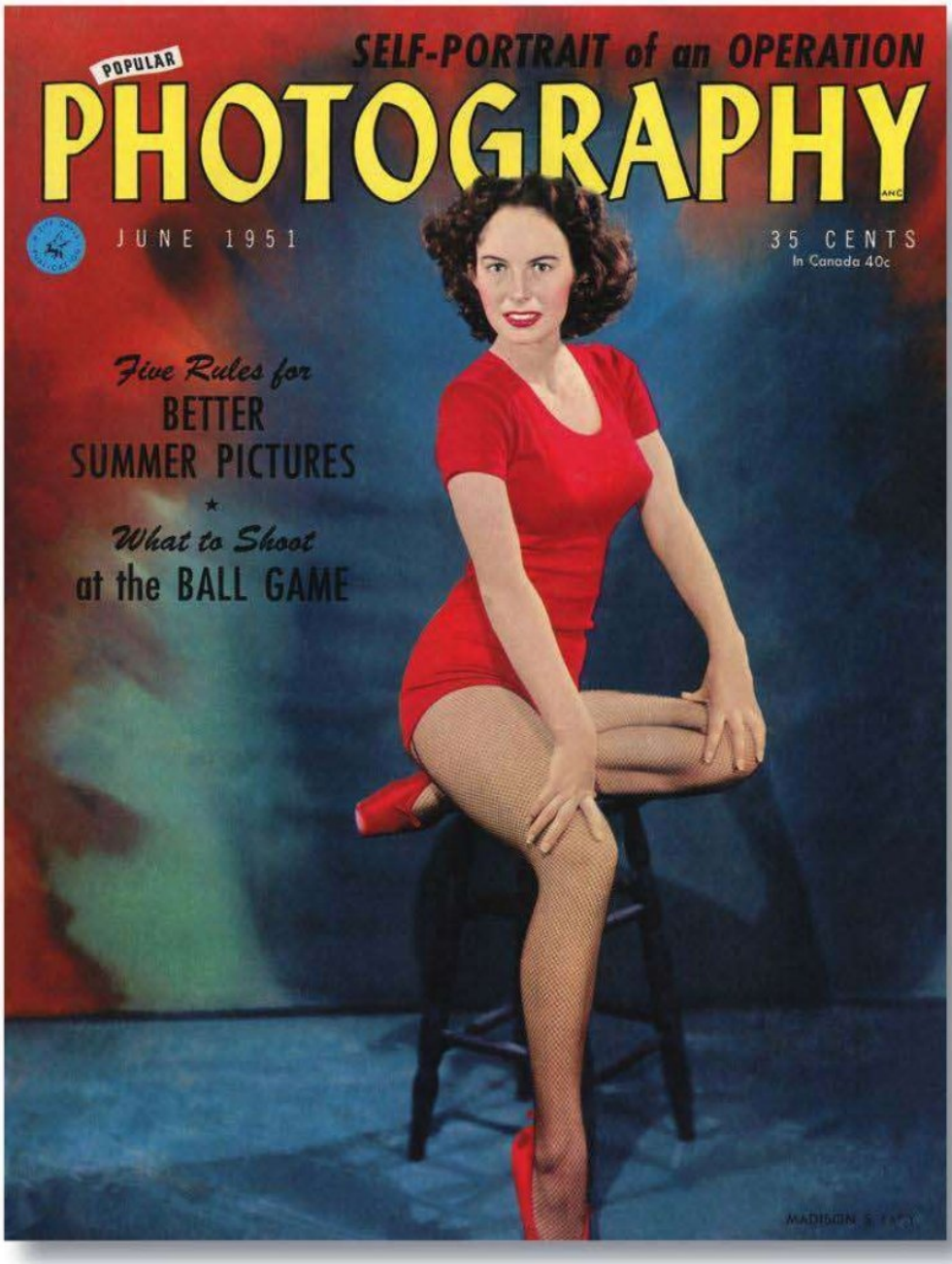

▲ Ready to Dance

This eye-catching red gym suit, with toe-shoes, was chosen by model Mona Knox to wear for this cover shot. The photo was taken by Madison S. Lacy of Tarzana, CA, using an 8x10 Ansco Universal View camera and a 16-inch Goerz Dogmar f/6.3 lens. Four lights—a 750-watt spot, a 150-watt spot, and two 300-watt floods—provided the lighting. Exposure, on Kodak Ektachrome Type B sheet film, was 1 sec at f/22.

60 YEARS AGO

Polaroid 420 film stole the stage at a trade show.

▼ Unique Classic

Willoughby's, still one of New York's premier camera stores, brought back this post-war version of a venerable German camera with roots in the 1920s. The Plaubel Makina III was loaded with features and accepted all types of film. Beautifully made, it couldn't compete with the more modern and convenient Rolleiflexes, Leicas, and Linhofs. The decision to sell it for $325 is inexplicable, but today it represents an interesting phase of camera development, and an innovative attempt to make a truly universal camera.

▶ Patient Self-Portrait

When freelance photographer Mary Eleanor Browning was scheduled for an operation, she decided to take the opportunity to produce an unusual story—her own procedure. The medical staff at the hospital did not think it could be done, but, proving that nothing stops a dedicated photographer, Browning covered the operation herself using her trusty Rolleiflex as well as a Leica. She also set up additional lighting equipment in the operating room. Some 108 shots later, the operation was complete, and so was Browning's story.

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▲ Grandpa's Pin-up

In the days before X-rated videos, titillation was provided by still photos such as these, which you could order by mail through classified ads in the back of photography magazines. Irving Klaw—who used a variety of burlesque stars and models, including Bettie Page—called himself the "Pin-Up King" and eventually branched out into motion pictures, too.

—Harold Martin

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SONY CYBER-SHOT DSC-HX100V

CONTINUED FROM PAGE 88

SPECIFICATIONS

IMAGING: 16.2MP effective 1/2.3-inch CMOS sensor captures images at 4608x3456 pixels each, with 8 bits/color. No RAW capture.

STORAGE: SD/SDHC/SDXC/MemoryStick Duo stores JPEG or MPO (3D) files.

BURST RATE: Full-sized JPEGs up to 10 shots at 10 fps with focus, white balance, and metering locked.

AF SYSTEM: TTL contrast detection with 9-point Multi-AF, centerweighted AF, and Flexible Spot AF selectable from center 45% of frame; Face Detection for up to 8 faces; subject tracking, although not between shots during bursts.

SHUTTER SPEEDS: 1/4000 to 30 sec, plus B (1/3-EV increments).

METERING: 99-area TTL metering for evaluative, centerweighted, and spot (percentage of frame not available). In face detection, metering is based on the face used for focus.

VIDEO: Records at up to 1920x1080p at 60 fps in AVCHD format, built-in stereo microphone, no mic input, continuous AF available in movie mode.

ISO RANGE: ISO 100–3200 (in 1/3-EV increments).

FLASH: Built-in pop-up with a range to approximately 20 feet (Auto ISO, with lens zoomed to telephoto)

BATTERY: Rechargeable NP-FH50 Li-ion, CIPA rating 410 shots.

SIZE/WEIGHT: 4.6x3.5x3.6 in., 1.3 lb with an SD card and battery.

STREET PRICE: $450

INFO: www.sonystyle.com

images in succession, giving results less oomph. Sweep Multi Angle can be played back on the camera by tilting and creating a 3D-like effect, again with less impressive results. You'll need a 3D-enabled TV to view these 3D images.

Despite our few gripes, we still wouldn't hesitate to recommend the HX100V to someone interested in a superzoom camera. It offers a very pleasant shooting experience, image quality that's impressive for its class, at a price that won't break the bank.

—Philip Ryan

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SD-15

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Quiet One

TAMRON'S SUPER-SLIM SUPERZOOM

EVERY YEAR, Tamron upgrades an all–in–one zoom, extending a zoom range, adding a hot feature such as Vibration Compensation, or shrinking barrel size. In 2011, it's the digital–only 18–270mm's turn. Its focal-length range stays the same (an industry-leading 15X zoom ratio), but the new one ($650, street) boasts new features and is surprisingly smaller.

Diameter has slimmed down 14 percent, so the lens now accepts 62mm filters instead of 72mm. It weighs 18 percent less and, when contracted, measures 24 percent shorter. When you consider its zoom range, this lens is miraculously compact.

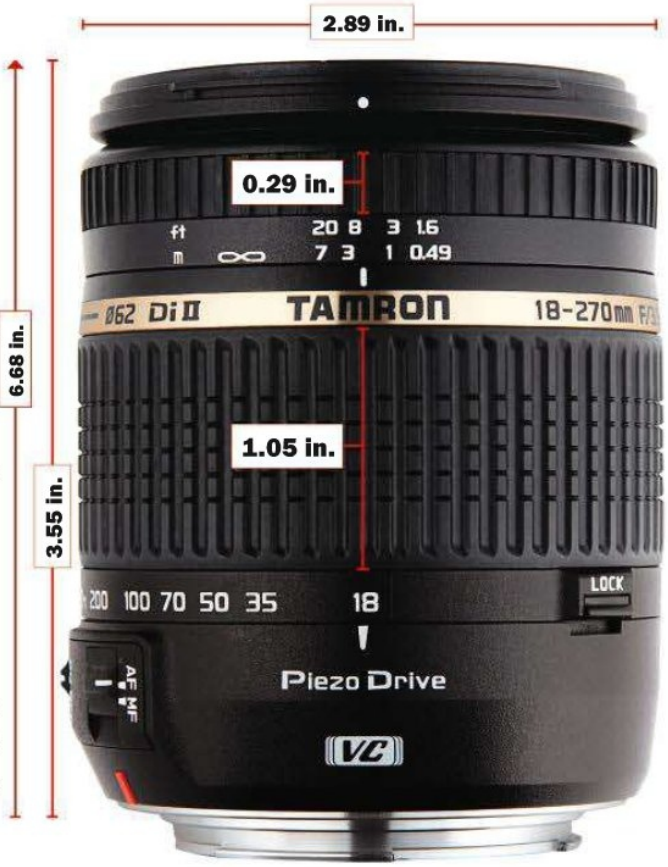
The lens boasts Tamron's first ultra–quiet Piezo autofocusing motor, similar to other ultrasonic drives, but even quieter—it makes virtually no sound. Also new: a redesigned VC mechanism that is partly responsible for the slenderizing.

At less than a pound, this zoom offers the most convenient handling of any lens reaching the supertele regions. Fully extended, it throws no shadow when used with a pop-up flash—the previous version did.

On our optical bench, it produced Excellent–range SQF numbers at 18, 35, and 100mm, indicating superior sharpness and contrast. At 270mm, though, it dropped down to the top of the Average range, the first lens to do so in recent memory.

The lens proved optically average in most other respects, with two standout features: spookily silent AF—one of the best lenses for digital video—and the VC system. One of our testers obtained sharp handheld pictures at 1/25 sec and the equivalent of 432mm—3.5 added stops of tripod-free sharpness.

Is this lens for you? Not if you need critically sharp pictures at its longest end. For everyone else, especially DSLR video fans and travelers with minimal luggage space who want a single all-in-one superzoom, this one's very hard to beat. *—Julia Silber*



SPECIFICATIONS

18–270MM (18.53–269.88mm tested), f/3.5–6.3 (f/3.42–n.a. tested*), 16 elements in 13 groups. Focus ring turns 60°. Zoom ring turns 70°. Focal lengths marked at 18-, 35-, 50-, 70-, 100-, 200-, and 270mm.
DIAGONAL VIEW ANGLE: 75–5 degrees
WEIGHT: 0.95 lb **FILTER SIZE:** 62mm
MOUNTS: Canon AF, Nikon AF, Sony AF
INCLUDED: Lenshood
STREET PRICE: $650

TEST RESULTS

DISTORTION: At 18mm, 0.69% (Visible) barrel. At 35mm, 0.30% (Slight) pincushion. At 100mm, 0.31% (Visible) pincushion. At 270mm, 0.23% (Slight) pincushion.
LIGHT FALLOFF: At 18mm, gone by f/5. At 35mm, none. At 100mm, gone by f/6.3. At 270mm, gone by f/8.
CLOSE-FOCUSING DISTANCE: 16.84 in.
MAXIMUM MAGNIFICATION RATIO: At 18mm, 1:15.7. At 35mm, 1:9.65. At 100mm, 1:4.19. At 270mm, 1:3.24.
IMAGE STABILIZATION: 2–3.5 stops.

*TESTED MEASUREMENT NOT AVAILABLE DUE TO INSTRUMENT LIMITATION.

TAMRON 18–270MM F/3.5–6.3 DI II VC PZD

WHAT'S HOT
Extremely compact with a broad zoom range.

WHAT'S NOT
Optically challenged at 270mm.

WHO IT'S FOR
Those wanting a wide zoom range in a small package.

BRIAN KLUTCH

Our staff testers had to put an ear up to the lens barrel to hear any AF sound—it was totally silent from any farther away. The zoom lock is necessary to counter the zoom creep.

SUBJECTIVE QUALITY FACTOR

Our standard lens test, SQF rates sharpness by print size

18 MM

Size	5x7	8x10	11x14	16x20	20x24
3.5	96.0	94.2	91.9	86.3	79.5
4.0	96.1	94.9	92.1	86.7	80.2
5.6	96.1	94.9	92.1	86.8	80.3
8.0	96.1	94.9	92.0	86.6	80.1
11.0	96.0	94.7	91.8	86.2	79.4
16.0	95.6	94.3	91.1	85.0	77.5
22.0	95.1	93.6	90.1	83.0	74.2

35 MM

Size	5x7	8x10	11x14	16x20	20x24
4.5	96.1	94.9	92.2	87.3	81.7
5.6	96.2	95.1	92.4	87.8	82.5
8.0	96.0	94.8	92.0	87.0	81.2
11.0	95.9	94.6	91.8	86.5	80.5
16.0	95.6	94.3	91.1	85.4	78.7
22.0	95.0	93.5	89.9	83.0	74.8
29.0	94.4	92.7	88.6	80.3	70.3

100 MM

Size	5x7	8x10	11x14	16x20	20x24
5.6	96.1	94.9	92.1	87.4	82.2
8.0	96.3	95.1	92.6	88.3	83.7
11.0	96.1	94.9	92.2	87.6	82.7
16.0	95.6	94.2	91.1	85.6	79.5
22.0	94.8	93.1	89.4	82.4	74.2
32.0	93.9	92.1	87.6	78.5	67.3
36.0	93.8	91.9	87.3	77.9	66.3

270 MM

Size	5x7	8x10	11x14	16x20	20x24
6.3	92.5	88.5	76.7	60.6	50.4
8.0	92.6	88.6	77.2	61.1	50.6
11.0	93.0	89.5	79.2	64.3	54.1
16.0	93.1	89.5	79.3	64.5	54.2
22.0	92.8	89.1	78.5	62.7	51.5
32.0	92.2	88.2	76.5	59.0	46.3
40.0	91.3	86.8	73.3	53.3	39.4

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CONTINUED FROM PAGE 82

The articulated LCD makes off-angle shooting significantly easier. You'll also find it easier to get a viewing angle with less glare on sunny days. As with the T3i, the screen leaves no room for a sensor to automatically turn the LCD off when looking through the optical finder.

The two-frame auto HDR setting in the D5100 does a good job of expanding the dynamic range you can capture by combining two frames at varying exposures. You can select up to a 3-EV difference between the shots and set a control called "smoothing" to choose the look you want. Low gives a harsher look, while High is a finer transition between tones. It does a decent job of aligning the two images, but it's always best to use a tripod for HDR.

Video captured by the D5100 looked quite nice, with well-saturated colors and little in the way of artifacts. AF is still a tad sluggish compared to a good camcorder and isn't continuous, but there is a stereo mic input and the built-in mono mic has basic level controls.

Bottom Line

If you are stepping up from an older Nikon DSLR, or have film-era Nikon lenses and don't mind focusing manually with them, the D5100 should please you. Its resolution boost over the D5000, better video capture, and articulated LCD screen make it a great imaging tool well adapted to a wide array of shooting situations.

If you're trying to choose between the D5100 and Canon's T3i, it's a harder decision. We preferred the Canon's buttons, but liked the Nikon's video experience more. The Canon focused faster in our test, but the Nikon gets more RAW shots per burst. And they cost nearly the same. Ultimately, we'd call it a tossup. —*Philip Ryan*

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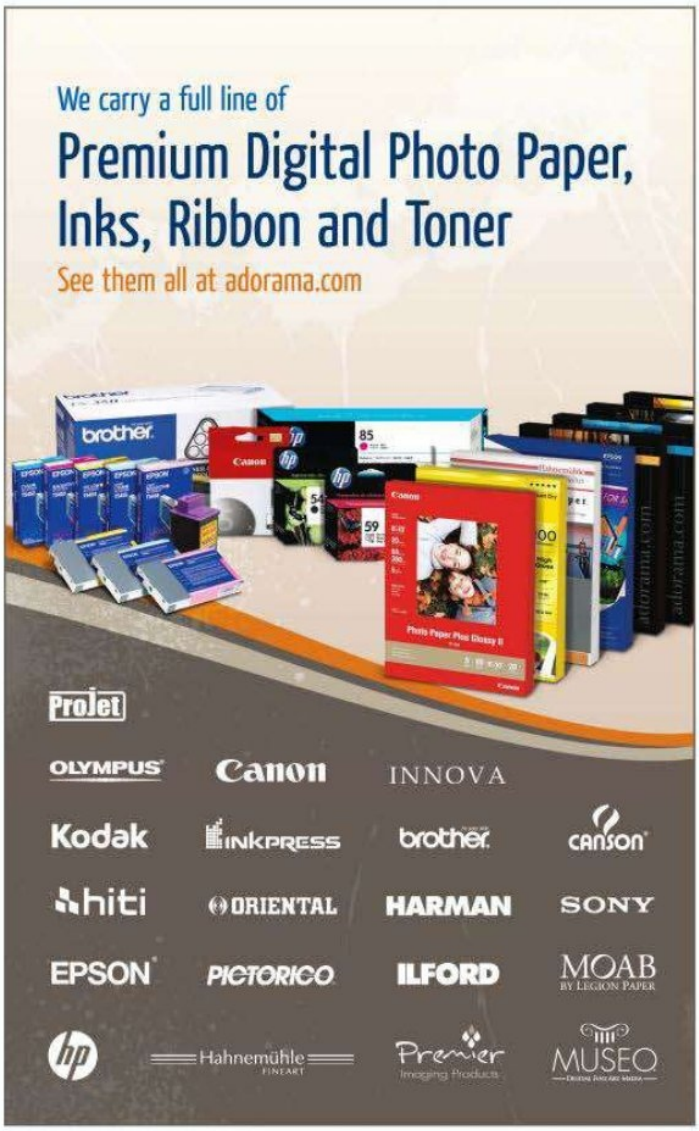

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CONTINUED FROM PAGE 57

there are countries where those with the enthusiasm and budget can do so (e.g., Bahamas and Dominican Republic in the Caribbean; Australia, New Zealand, and Tonga in the South Pacific). In-water encounters typically occur at the surface, which means that you won't need flash. The only specialized equipment that you will need is an underwater housing for your camera, along with a wide-angle dome port.

Where to Shoot

Whales migrate in fairly predictable patterns and schedules, depending on their species. (See the map on page 56 and the calendar of photo ops at top right.) From North America, they're most accessible in Pacific waters in these general locations:

- **ALASKA.** Summers in Alaska bring not only long days of sunshine, but also the return of the humpback whales from their winter breeding grounds in Hawaii and Mexico. These amazing creatures are known for their acrobatic skills, as well as their dramatic bubble-net feeding. Cruise ship visitors may catch a few glimpses of humpbacks in the distance, but for truly memorable photo ops, join a whale-watching tour. Almost all small-boat operators can guarantee whale sightings during peak summer months. You might also encounter other marine mammals such as orcas, Dall's porpoises, sea otters, and harbor seals.
- **HAWAII.** No visit to the Hawaiian Islands during the winter is complete without seeing a whale. Humpbacks can be easily spotted offshore from all of the popular tourist destinations. Daily boat tours get you as close to the action as possible. You frequently see spinner dolphins and pilot whales during most of these tours, too. Many whale-watching operators also offer regularly scheduled photography cruises that will allow you to spend more time with the whales or be out at sunset in hopes of catching a perfect breach in perfect light.
- **BAJA CALIFORNIA.** After protection was put in place, by the 1970s the gray whale population had rebounded. Eventually, they began seeking out encounters with the local fisherman. Once word spread about the "friendly" whales of Baja, a thriving eco-tourism industry evolved. Some whales come so close that they will lift the tour boats out of the water, and let you pet them. Be ready to photograph your companions leaning over to kiss a whale on the head.
- **PACIFIC NORTHWEST.** One of the most studied whale populations in the world is the resident orca population of Puget Sound and British Columbia. All of the major tourist communities support thriving whale-watching industries. There is contention about how much boat traffic disrupts the whales, but any of the reputable tour operators will obey

MOTHER AND CALF HUMPBACKS, HAWAII
Shot with a Canon EOS Rebel 2000 with 20mm f/2.8 Canon EF lens in an Ikelite housing. Exposure on Fujifilm Provia 100 was about 1/200 sec at f/2.8.

WHERE TO GO

SYNC YOUR CALENDAR

- **JANUARY–FEBRUARY** Sperm whales in Dominica.
- **JANUARY–MARCH** Humpback whales in Hawaii.
- **MARCH–APRIL** Gray whales in Baja California.
- **APRIL–MAY** Gray whale migration off the west coast of North America.
- **MAY–AUGUST** Humpbacks off New England, Nova Scotia, Newfoundland.
- **MAY–SEPTEMBER** Orcas in the Pacific Northwest.
- **JUNE–AUGUST** Humpback whales in Alaska.
- **JULY–AUGUST** Beluga whales near Churchill, Manitoba.
- **JULY–SEPTEMBER** Humpback whales in Tonga.
- **AUGUST–SEPTEMBER** Atlantic spotted dolphins in the Bahamas.
- **SEPTEMBER–NOVEMBER** Southern right whales in Argentina.
- **NOVEMBER–DECEMBER** Sperm whales and dusky dolphins in New Zealand.

the rules. Try visiting outside of the peak summer months to work with a smaller boat operator: You may find yourself the only photographer out on the water with orcas that day.

How to Shoot

There are a few classic shots you'll want to come home with. Here are some tips for each of them.

- **BREACHES:** Every whale photographer dreams of capturing a perfect breach, but not everyone is successful. If you encounter a whale that breaches repeatedly and is relatively close, you'll have a better chance. To anticipate where its next breach might be, hold your camera up to one eye with your finger on the shutter, but keep your non-viewfinder eye open to use your peripheral vision. Set your camera to a shutter speed of at least 1/1000 sec, preferably faster, to stop the action.
- **TAILS:** It's likely that the only part of a whale that you will see and photograph is its tail. First-timers might find this the highlight of the trip, but experienced shooters may tire of taking yet another tail picture. Getting the best whale-tail images requires you to take up a position directly

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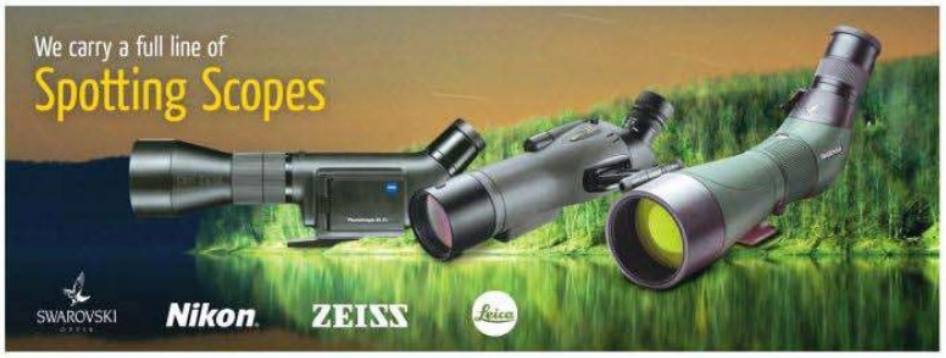

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KOKI BEACH, MAUI, HI
Sunrise shot with Canon EOS 5D Mark II on tripod, 17–40mm f/4L Canon lens, and Singh-Ray warming polarizer and 4-stop grad-density filter to darken the sky. Exposure: 0.4 sec at f/16, ISO 50.

HARBOR SEAL, TRACY ARM–FORDS TERROR WILDERNESS, AK
Cornforth added a full stop of exposure compensation for the light-colored ice. Canon EOS 7D with 400mm f/4 Canon EF DO IS lens; 1/800 sec at f/4, ISO 100.

behind the whale. Next, you have to predict when the whale is about to dive. When the tail comes up, shoot the entire sequence in a burst. One of these images will capture the moment that the tail lifts up fully as water pours off of it. Use a fast shutter speed to freeze the action.

- **UNDERWATER:** If you decide to take up the challenge of photographing whales or dolphins underwater, clearly you should be a confident swimmer. Holding your position on the surface as one of these creatures swims directly at you is an exhilarating experience. Use a wide-angle zoom lens such as a 16–35mm f/2.8 full-framer or equivalent to capture the immensity of these animals. With all that adrenaline surging through your body, remember to take a picture.

What if No Whales?

If you really want to photograph whales, you need to be comfortable being on a boat and spending days or even weeks on the water. Days can go by without a photo op or even a whale sighting. Keep your options open to photograph other marine wildlife. If animals do not cooperate at all, turn to landscapes. Whether glaciers in Alaska or beaches in Hawaii, there is always something to photograph. As much a challenge as photographing cetaceans can be, the memories and images will last a lifetime.

Landscape and wildlife photographer Jon Cornforth will be leading whale-watching tours in Baja's Laguna San Ignacio and Alaska in 2012. Check it out at www.cornforthimages.com.

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BACKSTORY

Building a Bridge

Jamey Stillings shoots construction phases

I FIRST learned about the construction of the Hoover Dam bypass bridge while on a road trip in 2009. I was so fascinated by it that I began photographing it as a personal project for 22 months. The final series, "The Bridge at Hoover Dam," will be published as a book in the fall of 2011 by Nazraeli Press.

I wanted to capture the bridge in its state of transition, but also within its complex landscape—its relationship to the Colorado River, Lake Mead, and the Black Canyon. Photographing a work under construction puts you under pressure to constantly reevaluate, knowing you'll never see it the same.

My 10 shoots from a helicopter enhanced that feeling, because I was working from changing perspectives. I'd be in the air, framing and reframing, trying to capture a unique moment of the bridge in a relatively simple way that also shows its relationship to the landscape.

This photo was made in June 2009. On this particular day there was a bank of clouds coming over the ridge, and while I cursed it at first, once I was in the air I appreciated how it made the light from this direction more diffuse. The bridge was at a poignant moment where the arch segments were finally coming together, and I wanted to express the tension of the two arches trying to meet in the middle. The lighting allowed me to capture this as well as the complicated landscape.

Now, the bridge is complete and open to the public. It was an engaging challenge—certain days I'd have beautiful light during a particularly photogenic phase of construction, but I'd never know if I'd have that same gift later on.

—As told to Lori Fredrickson

See Jamey Stillings' full series at www.bridgeathooverdam.com

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